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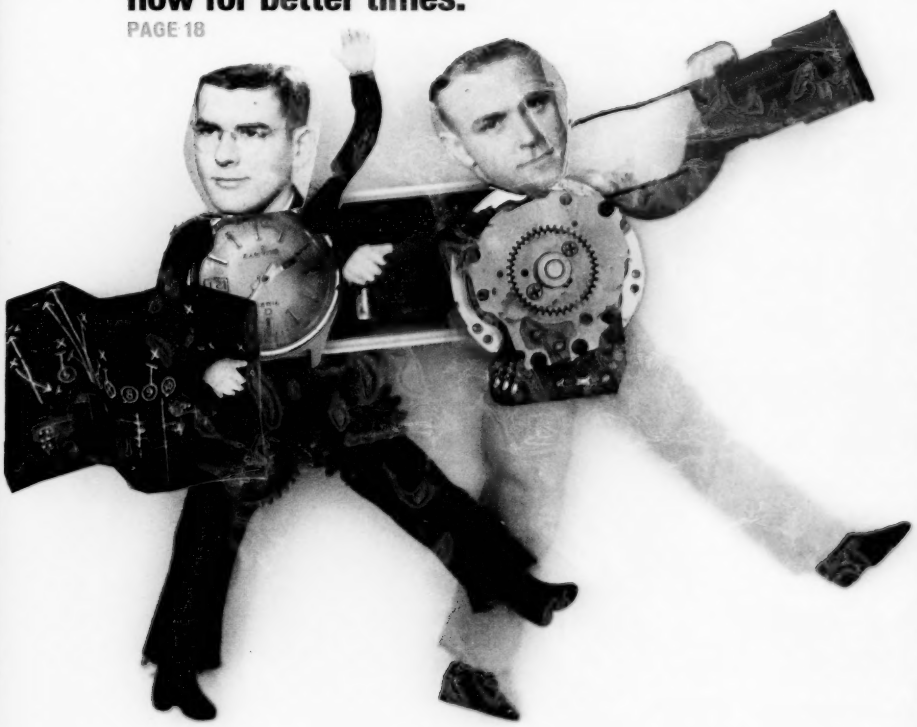

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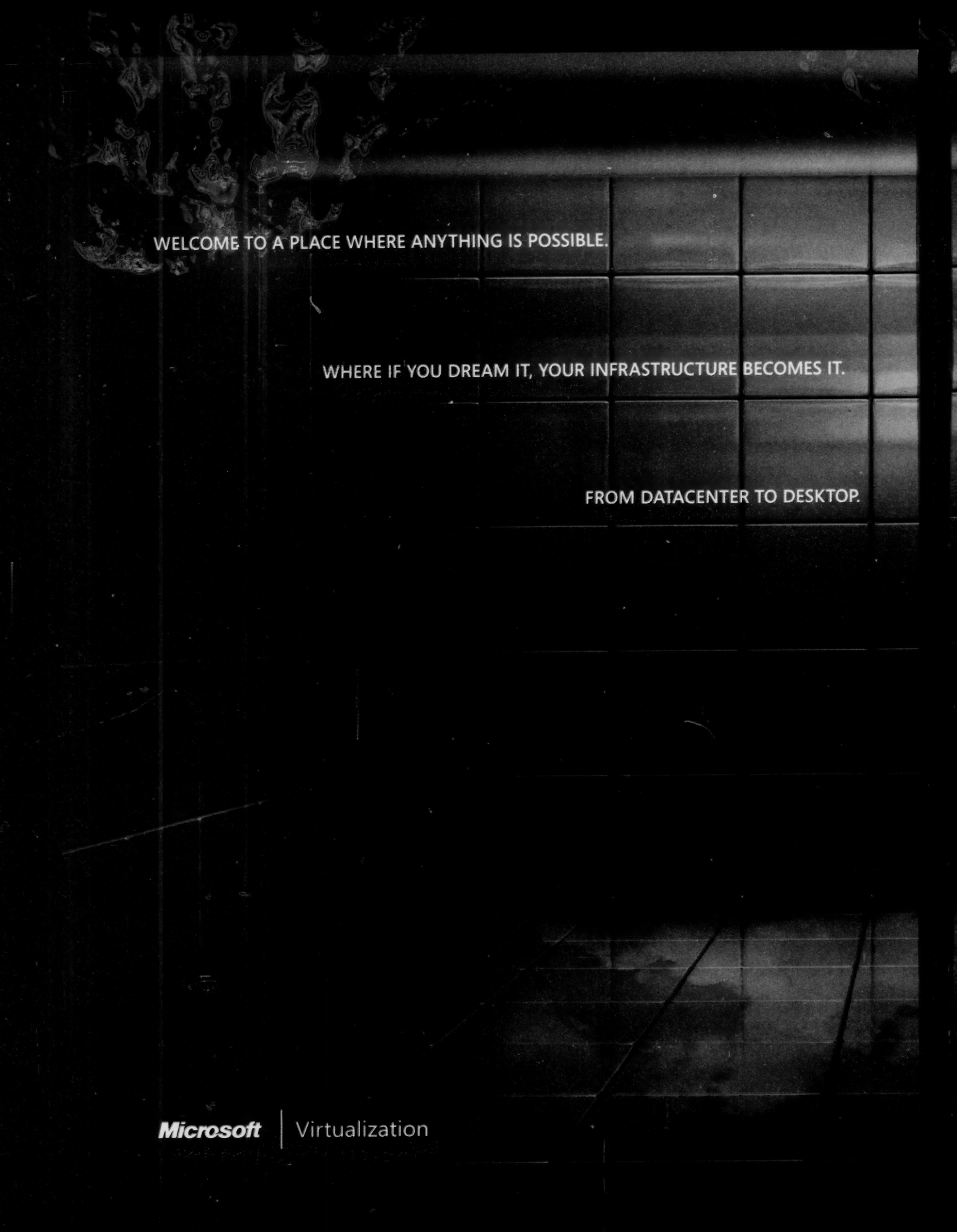
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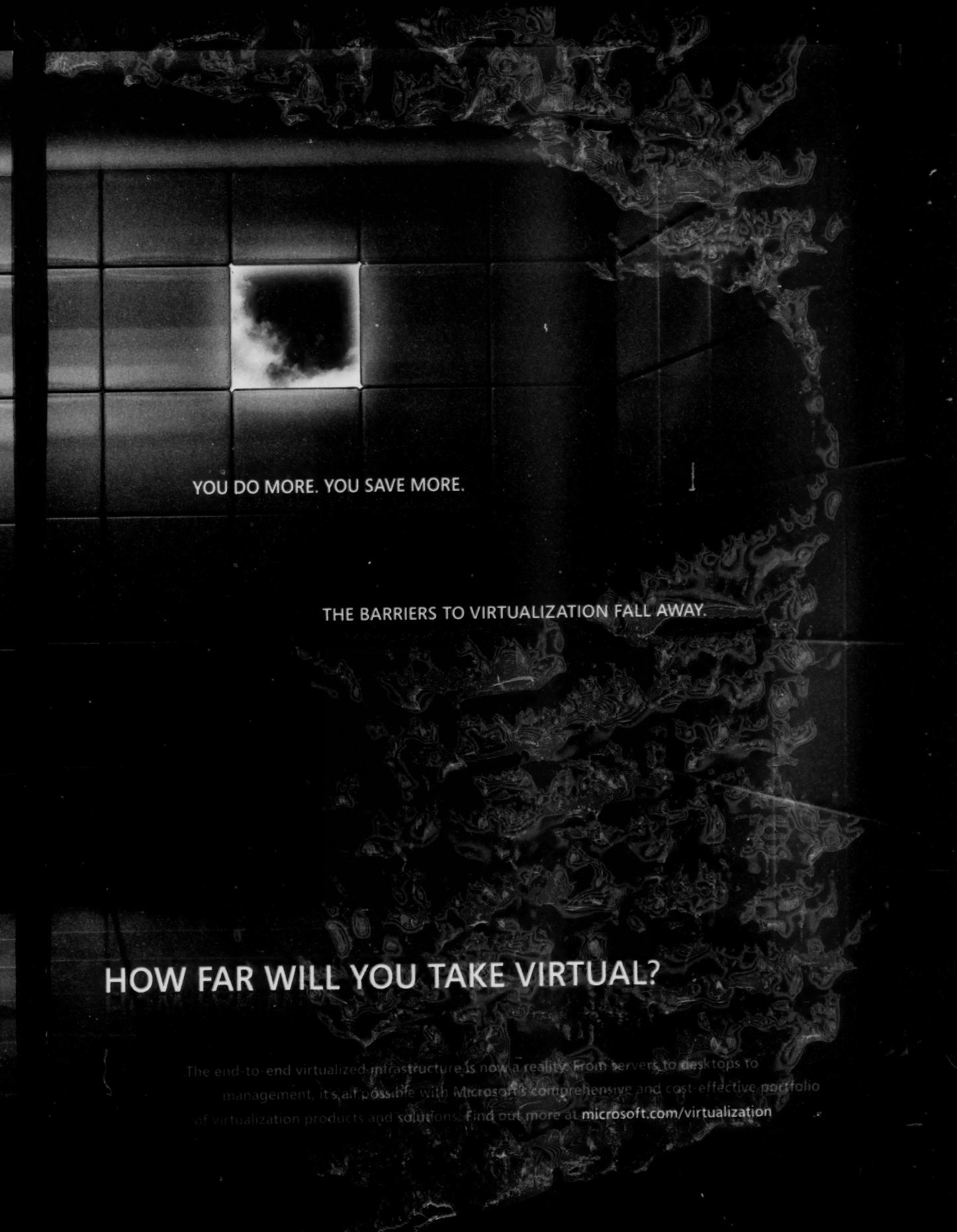
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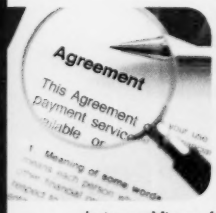

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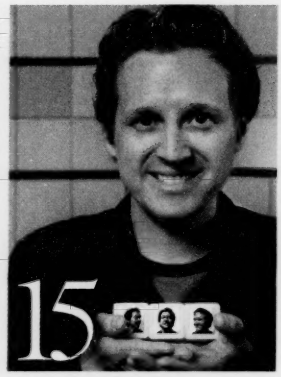

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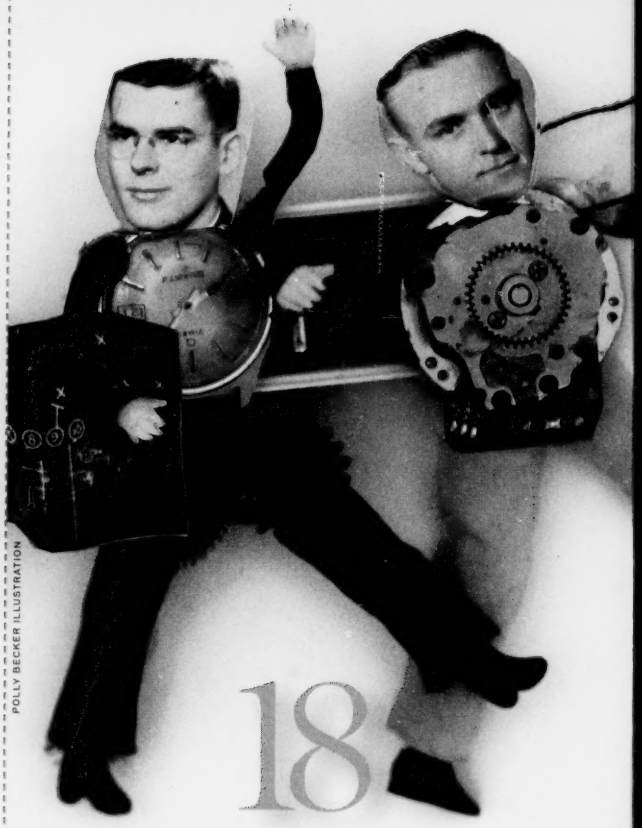

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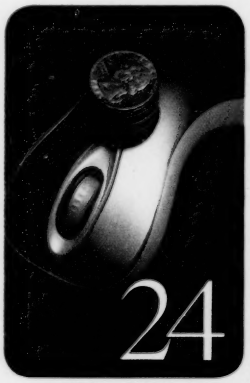

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492 Old Connecticut Path
Framingham, MA 01701
(508) 879-0700
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ONLINE CHATTER

RESPONSE TO:

A Year After Terry Childs Case, Privileged User Problem Grows

July 20, 2009

It is indeed a problem. Years ago, I submitted my two-week notice to a company at which I had both privileged and non-privileged accounts. Wanting to leave on good terms, I explained why I was leaving (a MUCH better job) and how I would ease the turnover during my final two weeks. My boss, angry that I was quitting, immediately removed access to my NON-privileged account. After he got over his little snit (he realized that they were still paying me for those last two weeks), he had the access restored. I realized that he (somehow) wasn't aware of my privileged account access. In fact, after I quit and moved to another state, I STILL had access to my privileged account (I occasionally checked in, never doing anything, for up to a year after I left). Had I wanted to, I could have caused untold damage. The situation is not so different today!

■ **Submitted by:** *A nonny mouse*

RESPONSES TO:

Why Google's Chrome OS Will Turn to Lead

July 21, 2009

Google is not making an OS from scratch. It's Linux, with some components added. The main part of the code Google gets for nothing. Including those drivers that author Preston Gralla is worried about.

■ **Submitted by:** *Jan Tångring*

Google is creating the OS (initially) for a limited amount of hardware, namely netbooks. It's also working with the vendors to ensure compatibility. Hardware issues aside, Google's real strength is going to be its presumably tight integration with the Google cloud: Gmail, Google Calendar, Google Docs, etc.

This OS is not going to topple Microsoft, but it will give it one more competitor to consider. Plus, it should give Linux another little push toward mainstream.

■ **Submitted by:** *rob*

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Data Centers Go Underground

For Continental and Marriott, abandoned mines and military bunkers offer a subterranean safe haven from hurricanes and other threats. But will more enterprises follow?

Windows 7: To Upgrade, Or Not to Upgrade?

We give you four reasons to do it soon, and four for holding back.

Irresponsibility Runs Amok At Black Hat, Defcon

OPINION: New columnist Kenneth van Wyk has no patience for researchers who give vendors very little time to patch vulnerabilities before they tell the world about them.

Windows Server 2008 R2 RTM

REVIEW: It's the best version of Windows Server to hit yet, our reviewer says. But this 64-bit OS isn't a good fit for every Windows shop.

The Incredible Shrinking Data Center

To help save costs – and help the environment – a growing number of enterprises are downsizing their data centers.

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News Digest

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THE WEEK AHEAD

MONDAY: Rackspace Hosting and Quest Software are scheduled to report their second-quarter financial results.

WEDNESDAY: The Next Generation Data Center conference opens at the Moscone Center in San Francisco; CloudWorld and the OpenSourceWorld conference, formerly known as LinuxWorld, begin there as well.

THURSDAY: The FileMaker Developer Conference is being held in San Francisco.

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SOFTWARE

Code Library Bug Is Likely Patch Tuesday Target

MICROSOFT CORP. plans to deliver nine security updates this week for August, five of them "critical" and all but one affecting Windows.

While Microsoft offers only an outline of its patching plans in advance, it appears that eight of the updates involve various versions of Windows and the ninth deals with vulnerabilities in Office, Visual Studio, ISA Server, BizTalk Server and several other products.

"It won't be a go-take-a-nap month," said Andrew Storms, director of security operations at nCircle Network Security Inc. "The good thing is that we're not looking at a lot [of vulnerabilities] in the public domain, so that should give everyone a week or two, at least, to test the updates before they deploy them."

Storms predicted that Microsoft will tackle bugs introduced when one of its programmers added an errant ampersand character to a vital code library used in Windows and an unknown number of third-party applications. Microsoft late last month acknowledged flaws in the Active Template Library (ATL), which is included with Visual Studio.

On July 28, Microsoft rushed out a pair of emergency updates to fix vulnerabilities traced to ATL. Two days later, Adobe Systems Inc. acknowledged that its Flash and Shockwave players had been developed using the buggy library and patched the software.

One of Microsoft's Patch Tuesday updates appears likely to address a problem the company has acknowledged affects its Office Web Components. But it's the flawed ATL library on which Microsoft seems likely to concentrate, Storms said.

In fact, that library has been used so much that Microsoft may be putting out patches related to it for a while. "I wouldn't be surprised if this goes on for a number of months as they go back and check their software," Storms said.

He expects this week's security updates to affect "core parts" of the Windows operating system. "Sometimes that's a little more worrisome than when Microsoft patches a single application, like IE," Storms said, "because if there's a problem with the patch, the entire OS could go down into a Blue Screen of Death."

— Gregg Keizer

OPERATING SYSTEMS

Microsoft Nixes Win7E For Europe

Betting that European antitrust regulators will approve its latest browser proposal, Microsoft Corp. has abandoned plans to ship a version of Windows 7 without Internet Explorer for European customers.

It now intends to offer a choice of rival browsers in Windows 7 in Europe.

Microsoft first proposed the Europe-only Windows 7E version, one of several concessions it has made to European regulators, nearly two months ago. The new "ballot screen" would provide download and informational links to rivals such as Firefox, Safari, Opera, Chrome and others.

"We will ship the same version of Windows 7 in Europe in October that we will ship in the rest of the world," said Dave Heiner, Microsoft's deputy general counsel.

But the company isn't happy about giving equal time to rivals. "It was not easy to accept the idea that we would essentially promote directly competing software from within our flagship product," Heiner said.

– GREGG KEIZER

SECURITY

Hathaway Resigns From Cybersecurity Czar Post

MELISSA HATHAWAY, who had been seen as a top contender for the job of White House cybersecurity coordinator, last week said she is resigning as acting senior director for cyberspace for personal reasons.

Hathaway's resignation is effective Aug. 24.

A former Bush administration aide, she was working as cybercoordination executive for the Office of the Director of National Intelligence when she was appointed to her new role by President Obama in February. At the time, she was directed to conduct a 60-day review of cybersecurity preparedness across the federal government.

Hathaway's highly anticipated review was finished in May and called on government officials to take several steps to bolster cybersecurity. One of the main recommendations was to establish a cybersecurity office within the executive offices of the president to oversee and enforce the development and implementation of a national cybersecurity policy.

Hathaway's departure is sparking speculation about a permanent replacement.

As part of her work under the Bush administration, Hathaway headed the multiagency National Cyber Study Group, which was instrumental in developing the multibillion-dollar, highly classified Comprehensive National Cyber Security Initiative. The CNCI was approved by then-President Bush in early 2008.

Until she was reassigned by Obama, Hathaway had been in charge of coordinating and monitoring the CNCI's implementation.

Hathaway's sudden resignation raises questions about the delay in naming the new White House cybersecurity coordinator.

Though Obama announced his plans to appoint a White House cybersecurity czar on May 29, when he received Hathaway's report, there has been no indication that he's close to naming anyone to the post. Hathaway's departure could change that.

"Her leaving raises the priority for the president," said Alan Paller, director of research at the SANS Institute in Bethesda, Md. As long as Hathaway was around, the need to find someone permanent was less urgent, he said.

John Pescatore, an analyst at Gartner Inc., said that Hathaway probably knew she wasn't going to get the job and decided to be proactive. "She has gotten a lot of visibility, so there will be no shortage of security product and consulting firms that she can go and work for," he added.

— Jaikumar Vijayan

Short Takes

Intel Corp.'s investment arm has provided five companies with $10 million to develop technologies that will reduce electricity bills and greenhouse gas emissions in homes and data centers. The investments are part of Intel's Open Energy Initiative.

Mozilla Corp. last week patched Firefox 3.5 and Firefox 3.0 to quash six security vulnerabilities, including two that had been unveiled at the Black Hat conference in July and a third that Mozilla itself revealed.

In a filing to the U.S. Securities and Exchange Commission, Microsoft Corp. for the first time named Linux distributors Red Hat Inc. and Canonical Ltd. as serious competitors to Windows. The acknowledgment is due mainly to the use of Linux on netbooks.

Apple Inc. last week released Mac OS X 10.5.8, an operating system update that included patches for 18 vulnerabilities. Six related to image file formats could allow hackers to hijack machines.

GOVERNMENT IT

Russian President Critical Of Stalled IT Advancement

Russian President Dmitry Medvedev criticized his country's lack of progress in developing supercomputer technology during a speech to the nation's Security Council late last month.

Medvedev, noting that 476 out of the 500 systems on the Top500 list of the world's largest supercomputers were manufactured in the U.S., said that "in general, our situation is very difficult."

He was clear about whom he blames: Russia's IT industry.

"A huge number of entrepreneurs, not to mention officials, do not know what supercomputers are. For them, it is an exotic type of those machines that were created in the 1920s to catch up and overtake America," Medvedev said.

Russia's President Dmitry Medvedev at a Security Council meeting on supercomputers.

He noted that whereas most Western countries use supercomputers to design products like aircraft, most Russian product designers still use pencil and paper. "Only a digital approach can have a breakthrough effect [and] lead to dramatic improvements in quality," he said.

IDC analyst Earl Joseph noted that there are pockets of commercial supercomputer development by Russian companies. Moscow-based T-Platforms, for example, is offering a high-performance supercomputer built with commodity hardware bundled with a variety of scientific and engineering services.

– PATRICK THIBODEAU

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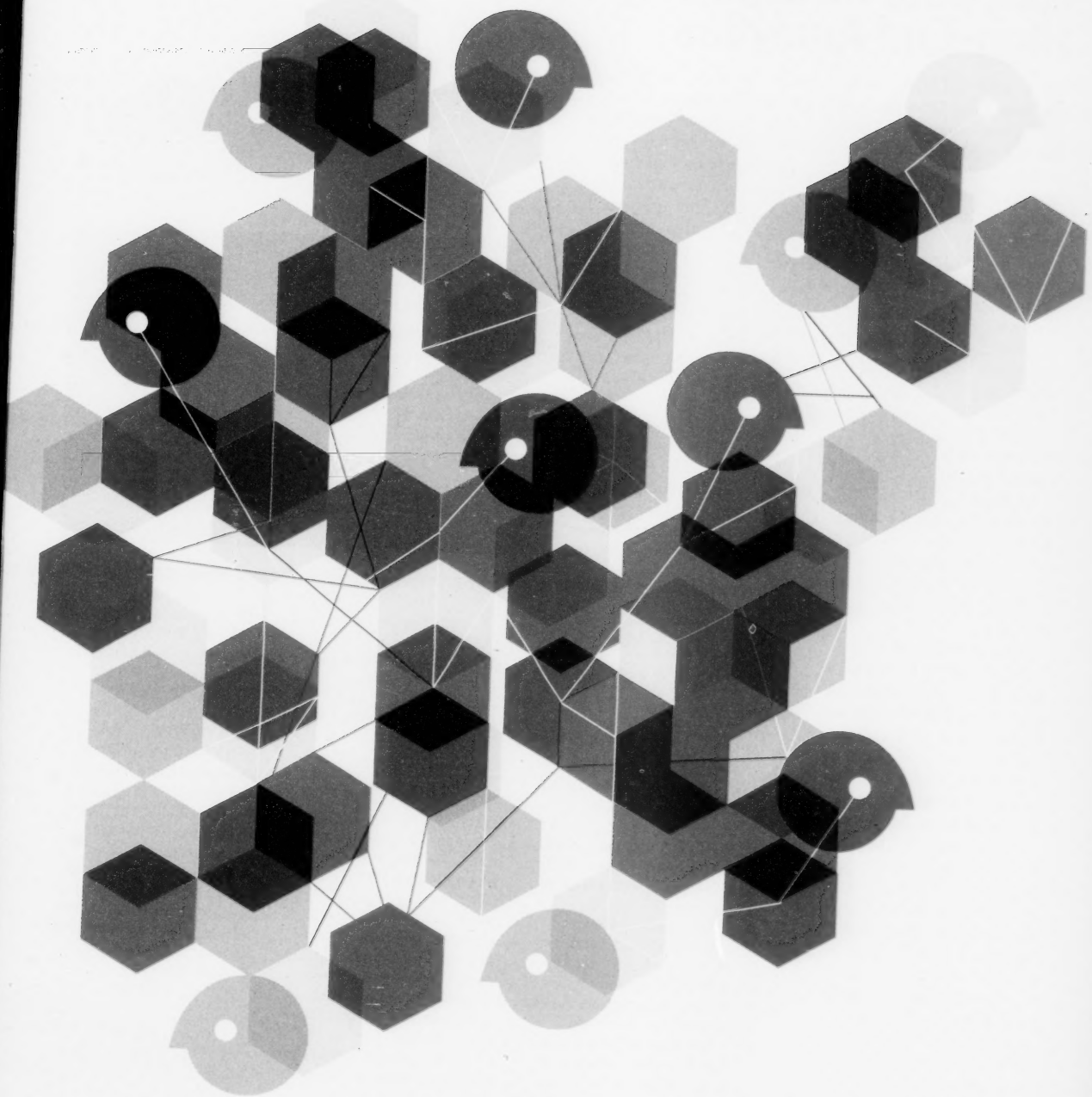

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BUSINESS INTELLIGENCE

IBM Sets Its Sights on High-End Analytics

IF IBM'S $1.2 billion deal to acquire SPSS Inc. closes as expected later this year, the company will immediately transform from pretender into contender in the high-end analytics and data mining business, analysts said.

According to market researcher IDC, IBM in 2008 held a 0.5% share of the $1.5 billion worldwide advanced analytics market. Combined with SPSS, IBM would hold a 14.5% share of the market, trailing only SAS Institute Inc.'s 33% share.

IBM said that the SPSS products will continue to be supported and enhanced as part of the IBM Information Management product line, but analysts noted that they will closely watch how IBM might otherwise use the acquired technology.

"The integration of predictive analytics with other analytic or operational technologies is still ahead of us, so there was a lot of value to be gained from SPSS beyond what it had stand-alone," said Curt Monash, founder of Monash Research in Acton, Mass. Whether IBM can spread that value throughout its product lines "depends on the integration road map and execution."

Monash also noted that SPSS's acquisition by IBM represents a missed opportunity for rivals like SAP AG and Oracle Corp.

"[Buying SPSS] would have given [SAP or Oracle] a competitive advantage against the other in the integration of predictive analytics with packaged operational apps," he said.

> **"The integration of predictive analytics with other analytic or operational technologies is still ahead of us.**
>
> CURT MONASH, MONASH RESEARCH

The companies agreed to the all-cash deal shortly after they jointly announced that IBM had licensed some SPSS technology.

— Eric Lai, with Peter Sayer of the IDG News Service

BETWEEN THE LINES

By John Klossner

BENCHMARKS LAST WEEK

Google Inc. CEO Eric Schmidt resigned from Apple Inc.'s board of directors, citing the increased competition between the two companies. Schmidt had served on the board since 2006.

Carolyn B. Lamm, president of the American Bar Association, has formed an ABA commission on ethics to deal with technology issues and the law.

32 YEARS AGO: Radio Shack announced its first personal computer, the TRS-80 Model 1, which offered 4KB of RAM and cassette-tape storage.

Global Dispatches

Regulators Review Oracle-Sun Deal

BRUSSELS – The European Commission is looking into Oracle Corp.'s proposed $7.4 billion acquisition of Sun Microsystems Inc. and expects to release its first opinion on the buyout on Sept. 3.

The European Commission was officially notified of the deal on July 30 and has 25 working days to decide whether it needs more time for an in-depth investigation.

Oracle announced in April that it planned to acquire Sun for $9.50 per share. The deal would reshape Oracle as a hardware and software vendor that can compete more fully with IBM and Hewlett-Packard Co.

The U.S. Department of Justice is also reviewing the planned deal and has extended its review once already.

Mikael Ricknäs, *IDG News Service*

Ericsson Wins Nortel Auction

STOCKHOLM – LM Ericsson Telephone Co. late last month won the bidding war for the wireless assets of Nortel Networks Corp., agreeing to pay $1.13 billion (U.S.) for the financially beleaguered company's CDMA business and LTE Access technology. Toronto-based Nortel has operated under bankruptcy protection since January.

The deal, subject to court approval, would expand Ericsson's foothold in North America, adding large operator customers like Verizon Communications Inc. and Sprint Nextel Corp.

Ericsson said it will offer jobs to at least 2,500 Nortel employees when the deal closes.

Marc Ferranti, *IDG News Service*

BRIEFLY NOTED

The U.K. Ministry of Defense has awarded IBM a five-year, £23 million ($37.9 million U.S.) contract to manage the Royal Air Force's air surveillance command-and-control system. The deal calls for IBM to work with the ministry to manage an IBM-built system that identifies and monitors the movements of aircraft in flight over the U.K.

Siobhan Chapman, *Computerworld U.K.*

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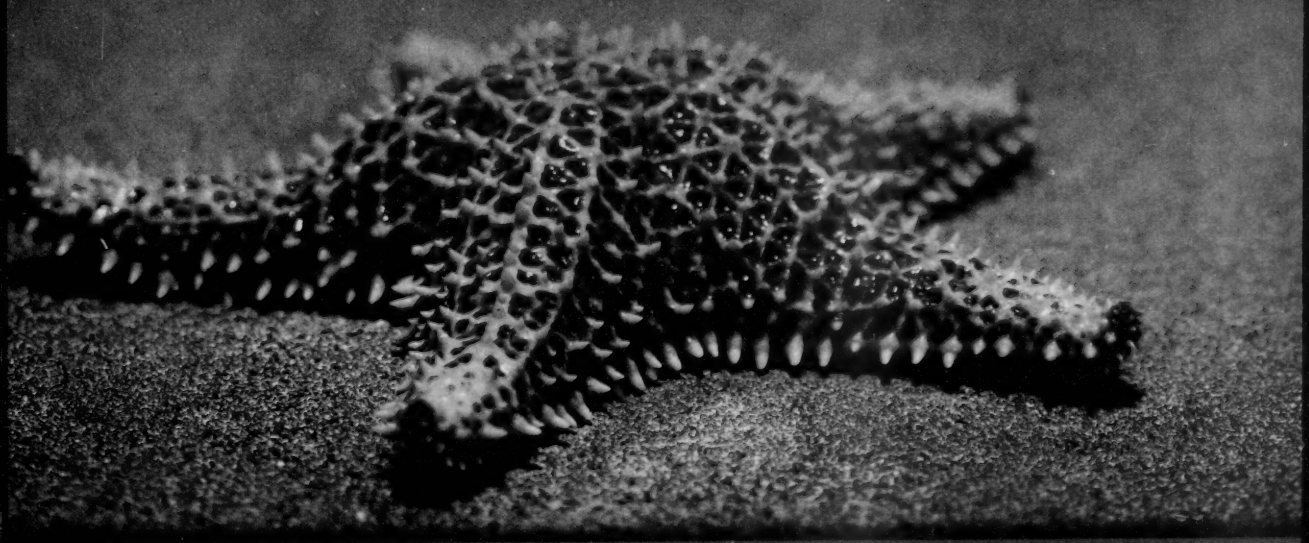

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■ NEWS ANALYSIS

Twitter Breach Revives Cloud Security Fears

Some interest groups are urging Los Angeles to rethink its plan to implement Google Apps. By Jaikumar Vijayan

LAST MONTH'S breach of a hosted Google Apps implementation used by Twitter Inc. has heightened fears in some quarters that cloud computing could pose significant security and privacy risks to users.

The Twitter breach gave a hacker access to confidential company documents via an employee's work Gmail account that had been hijacked through the password reset feature.

Shortly after the breach, some public interest groups and local law enforcement officials cited potential security concerns in calling on the city of Los Angeles to reconsider plans to replace its Novell GroupWise e-mail and Microsoft Office software with Google Inc.'s hosted e-mail and office productivity applications.

The $7.25 million migration project is set to begin later this year after its expected approval by the Los Angeles City Council. City officials have projected that the move to Google Apps will save about $13 million in software licensing and personnel costs over a five-year period.

Consumer Watchdog, an advocacy group based in Santa Monica, Calif., said the Twitter incident raises questions about whether "Google's cloud as offered provides adequate safeguards." In a letter to several Los Angeles city councilors, the group urged that city IT personnel first test Google Apps with a small group of users, rather than following the current plan of implementing it for 30,000 users by the end of this year.

"Before jumping into the Google deal, [the city council] needs to insist on appropriate guarantees — for instance, substantial financial penalties in the event of any security breach," John Simpson, a Consumer Watchdog project manager, wrote in a blog post.

In a letter sent to Los Angeles Mayor Antonio Villaraigosa on July 16, the World Privacy Forum encouraged the city to move "slowly and cautiously" in implementing Google Apps, citing "considerable legal uncertainty about the status of data in a cloud computing environment."

Matt Glotzbach, director of product management for Google Enterprise, said the angst voiced about Google Apps and the Los Angeles project is based on incomplete information. "From what I know of the city's operation, this is a security upgrade," Glotzbach said. "Those who may be unfamiliar with cloud computing see this as a security risk simply because it is new and because it is something different."

Randi Levin, the city's chief technology officer and general manager of the Los Angeles Information Technology Agency, noted that the California State Department of Justice has reviewed the security and privacy plans and tentatively approved the project.

Nonetheless, IT managers suggest that large technology users should tread carefully and conduct comprehensive risk assessment studies when deciding whether to migrate to cloud-based products.

For example, Matt Kesner, chief technology officer at Fenwick & West LLP, a San Francisco-based law firm, said that IT managers need to consider the security and privacy implications of using applications hosted by other companies at off-site locations.

"It's one thing if you could be sabotaged by five people or even 500 people working with you in your company," he said. "It's another thing if the people stealing your information could be any other person on the planet."

Christopher Pierson, chief privacy officer at a large financial institution he asked not be identified, said that companies considering hosted products should also look at the potential for data commingling if their potential cloud provider hosts multiple customers on the same systems in a single data center.

Pierson also said that IT's concerns about cloud computing "are very similar to the concerns and risks associated with traditional data storage outsourcing, offshoring or other forms of remote data access." ■

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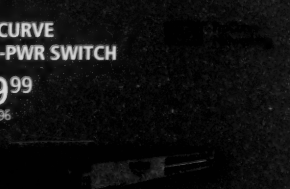

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Google Has Little to Fear From Microsoft-Yahoo Deal

Analysts say that Google should easily fend off the combined effort of its rivals.

By Sharon Gaudin

MICROSOFT CORP. and Yahoo Inc. hope that the consummation of their long-anticipated online search agreement late last month will give them a boost in their frustrating battles with common rival Google Inc. Analysts, though, say the search giant probably has little to fear from the combined effort — at least in the short term.

The 10-year agreement calls for Microsoft's new Bing search engine to power Yahoo's search sites, and for Yahoo to sell premium search advertising services for both companies. The companies said they expect the deal, which must be reviewed by U.S. and European regulators, to close early next year.

Analysts do say that the Microsoft-Yahoo partnership should provide each company with some much-needed leverage in their ongoing — and, until now, separate — battles to loosen Google's longtime stranglehold on the search market, though none expect it to lead to any dramatic changes in that arena.

In terms of search market share, both Yahoo and Microsoft have long lagged far behind Google, which held nearly 80% of the market in June.

"Both Microsoft and Yahoo need this deal if they harbor any hopes of getting back into the lucrative search game," said Dan Olds, an analyst at Gabriel Consulting Group Inc.

Separately, "Microsoft and Yahoo have invested billions of dollars in trying to build search and content portals that would be able to command Google-like ad revenues. But both have failed to blunt Google's revenue growth," he said. "With a well-executed plan and solid cooperation, they have a shot [together] of at least giving Google a run for its money."

However, Olds added that Google "has had plenty of time to plan for [a Microsoft-Yahoo partnership]. I would expect [Google] to continue to tend to business."

"It's not like this is going to change the world or turn things upside down," said Karsten Weide, an analyst at research firm IDC. "This is going to make Microsoft and Yahoo more competitive, but it's not going to dethrone Google."

A Google spokesman said that the company is "interested to learn more about the deal."

The agreement comes about two months after Microsoft revamped its much-maligned Live Search tool and relaunched it as Bing, which is already taking market share from Yahoo's search engine and even a bit from Google.

At the same time, Yahoo has a larger network of search advertisers, which are now more accessible to Microsoft.

After full implementation, which the companies anticipate will come about two years after regulatory approval, Yahoo expects the agreement will generate about $500 million in operating income and a savings of about $200 million in capital expenditures. The company also expects to add $275 million to its annual operating cash flow.

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According to a filing with the U.S. Securities and Exchange Commission last week, Microsoft will pay Yahoo $50 million per year for three years and hire at least 400 Yahoo employees.

Rebecca Jennings, an analyst at Forrester Research Inc., said the deal should boost Microsoft's share of the U.S. online advertising market to about 30%, up from 8% to 9% today. That would translate to significant dollars, since Jennings projects that the market will grow by about 15% annually and reach about $30 billion by 2014.

Yahoo benefits by no longer needing to invest in its search engine, which was not gaining traction against Google anyway, Jennings said.

But Yahoo's abandonment of its search engine could also be the beginning of the end of Yahoo as an independent company, analysts said.

Jim McGregor, an analyst at In-Stat in Scottsdale, Ariz., suggested that Yahoo will likely merge with Microsoft before the close of the contract period.

"Once you give up a key part of your business, it's hard to regenerate that," McGregor said. "What you do is merge with your partner. And a 10-year deal is kind of unheard of in this industry. They did this as a permanent thing." ■

Elizabeth Montalbano *of the IDG News Service contributed to this story.*

SARA FORREST

Dossier

Name: David Merrill

Title: Co-creator of Siftables

Organization: Ph.D. student in the Fluid Interfaces Group at MIT Media Lab; affiliate of Taco Lab, a hybrid design and engineering firm specializing in interfaces and interactions

Location: San Francisco

Philosophy in a nutshell: "I love to build enabling technologies that make people's lives better. I approach life as rationally as I can, but I stay open to unexpected conversations, recommendations and collaborations."

Musical tastes: Acoustic folk, electronic, and surf rock

Favorite museums: The Exploratorium (San Francisco), the Tate Modern (London) and the Egyptian Museum (Cairo)

■ **THE GRILL**

David Merrill

His **'manipulative' computers**, the size of a child's **building blocks,** hold the promise of improving our **daily interactions** with our PCs.

David Merrill, a graduate student at the MIT Media Lab, wants to make your computer work for you — literally. Imagine arranging images, composing electronic music and completing math and language tasks on your computer using a more three-dimensional approach. Merrill believes that the little miracle blocks he calls Siftables will help us interact with digital media in a more natural, tangible way. As their co-creator, he is passionate about this science of "embodied media."

What is embodied media, and in what ways does it overcome the obstacles of traditional computing? The computational power of everyday computers has grown enormously in recent years. As a result, the most important bottleneck is now the effectiveness of the human-computer interaction rather than the speed of the processor. We've had the keyboard and mouse for more than 40 years now; while these are still useful interfaces, I don't believe they are the best we can do for all of our computing needs.

Embodied media offers a new point in the interaction design space between tangible and graphical user interfaces. It combines elements of both paradigms — physically embodied manipulatives that can be grasped and moved by hand, and screens that can show visual information. The graphical display is a key feature compared to other "tangibles," since it allows the interactive roles and content assignments to manipulatives to be visually legible to the user and dynamically assigned at runtime.

Can you talk about your past experience with computer science? How did you become involved with this type of work? My first programming experience was using Logo to draw geometric patterns

"My belief is that we need a new generation of hand tools for the Digital Age.

when I was in fourth grade. Then, in high school, I wrote some math applications and games for my TI-82 graphing calculator after a friend showed me how to use variables and loops. But it wasn't until I was an undergraduate at Stanford that I really fell in love with computer science. At first, the elegance and flexibility of software satisfied my budding inner geek, but after I took an electronic-instrument-building class taught by Bill Verplank and Max Matthews at the computer music center, I realized that designing totally new hardware devices opened a world of possibilities for interfaces. Building physical systems for human-computer interaction became my obsession. I built several musical interfaces at Stanford, and in my research at the MIT Media Lab I developed a number of new physical interfaces.

When did you begin working on Siftables, and what are they made of? Siftables began a few years ago as a brainstorm with Jeevan Kalanithi; we imagined how people might interact with digital information by using their hands to manipulate a sea of tiny physical, active, computational objects. We were influenced by ideas from tangible interfaces, pervasive computing and sensor networks, but only later would Siftables be contextualized against the backdrop of these ideas as a hybrid platform that blended these themes with the flexibility of pixels that defines graphical user interfaces. The beginning was pure inspiration, an uninhibited "what if" speculation about a system that would permit compelling new physical interactions.

Over the next year, Jeevan and I built a series of prototypes, each improving on the previous and introducing more functionality. Today, each Siftable is a small interactive computer with a graphical display, neighbor and motion sensing, a rechargeable battery and wireless communication. They can give physical embodiment to digital content and be manipulated as a group as an interface to the content.

Do different Siftables have different components, or vary in size or shape? The size of each Siftable is mostly determined by the display, and the current display is large enough to show an image thumbnail or symbol such that it can be recognized easily from across a tabletop. We have also built a few applications that use Siftables in conjunction with a large display. One example is TeleStory, a language-learning application created by my MIT colleague Seth Hunter. TeleStory is an interactive cartoon narrative that children can control by lifting, shaking and aligning Siftables, each one showing a character or item. The Siftables act as the controller, and the action happens on the large screen. This may be a useful model for future applications, though it introduces some challenges in managing the user's attention.

Can cities and urban areas benefit from embodied media in public parks and historical sites, for example? What about museums? Absolutely. Accessible user interfaces such as embodied media, multitouch, and other physical and gesture-based systems can offer great benefits to "walk up and use" interactive installations at museums and other public sites. For a long time, a trackball with durable buttons controlling a mouse cursor on a computer monitor was the state-of-the-art in interactive museum installations, but that is starting to change. Based on my own interactions with people in the science museum world, I think there is a growing awareness that the next generation of tools is becoming available, and many are trying to make use of the new capabilities.

What are the biggest problems for current computer interfaces, and how do you strive to overcome these obstacles? Computers need to become more delightful. For many people, computers are a source of daily frustration. Programs crash or run sluggishly, or they are confusing or repetitive to use. Error messages often don't provide enough context, nor is there anything that most users can do to solve many program errors. Some of these problems stem from the fact that the capabilities of computers are often not exposed to the user in ways that are a good match to the activity domain.

My belief is that we need a new generation of hand tools for the Digital Age. Like traditional hand tools such as wood planes, drills and spades, the visual appearance of these tools will suggest their use, and physical motion will be integral to the activity. However, instead of sculpting physical matter, these tools will operate on digital bits. Or perhaps the line will be blurred.

I think we need more computational tools that leverage our lifetime of knowledge rather than making us always learn new conventions.

— Interview by **Sara Forrest,** *a freelance photographer and writer in New York (studio@saraforrestphoto.com)*

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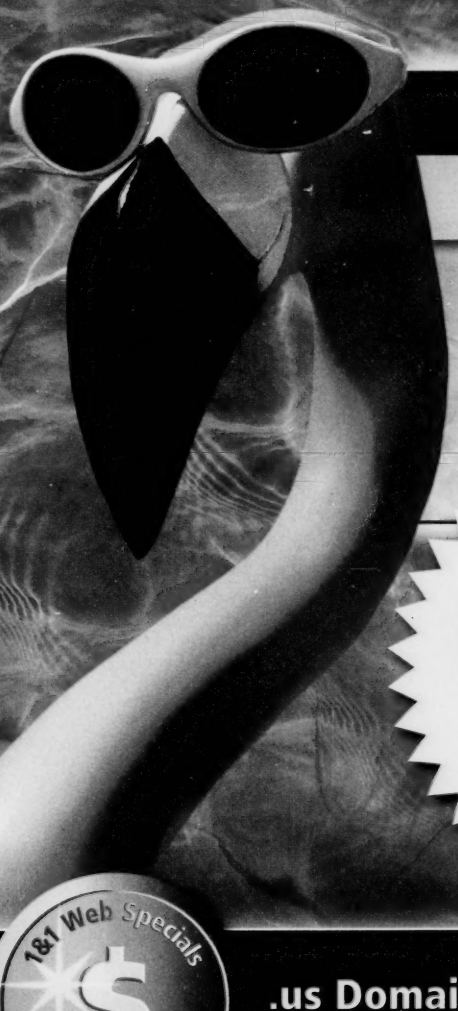

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COVER STORY

RECOVERY AHEAD

DON'T JUST SIT THERE. *It's time to position your IT department for the economic upturn, whenever it comes.*

BY MICHAEL FITZGERALD

ANNE AGEE is living a dual life at work these days. On the one hand, she's facing the prospect of a deep cut in her IT budget. On the other, she's bracing for a boom in business.

Agee, CIO at the University of Massachusetts Boston, is in a position that many IT managers find themselves in these days — coping with the ongoing effects of a grinding recession while simultaneously being asked to get ready for a recovery.

At UMass Boston, Agee has to prepare for a possibly devastating budget cut while also readying her department for an influx of students, and related faculty hiring, as families shift from more expensive schools to state colleges.

Agee is using the downturn to eliminate sacred cows, such as a long-standing remote-access modem pool that costs several thousand dollars a month in connection fees. That will be replaced by an existing virtual private network, which will cost less and be more secure. She's also pushing to eliminate fax machines, with

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>
> **FRANK LOWERY,** IS DIRECTOR, EBARA INTERNATIONAL CORP.

the goal of putting in fax servers or related technology. And she's exploring whether she can replace individual desktop printers with centralized, shared multifunction printers.

She's already renegotiating vendor contracts, to reduce the risk of needing to cut staff if she does have to whack her budget. Another hedge would be to close labs on weekends and delay certain technology purchases.

Agee isn't the only IT manager having to plan for growth during a downturn. We talked with several, and they offered the following nuggets of wisdom.

TAKE CARE OF YOUR BUSINESS PARTNERS

The downturn has given some IT managers a chance to slow down and examine what they've been racing around doing. That's the case for Frank Lowery, IS director at Ebara International Corp., which makes liquid natural gas equipment in Sparks, Nev.

While Ebara has had some layoffs, Lowery himself has had to neither lay anyone off nor cut his budget. Still, business has slowed, so he's had the opportunity to evaluate past projects and look ahead.

That has led to a refocusing of resources, from customer projects to ones that will help Ebara's suppliers. Instead of building a massive portal to share data with customers and suppliers, as Ebara had originally planned, it built a supplier portal only, with the

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> **"Never outsource your core, customer-facing IT people who work with your business."**
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customer piece on hold until later.

That might seem counterintuitive, but the company builds its equipment to order, so holding off on addressing suppliers' needs could create efficiency problems. "If we can make it easier for suppliers to do business with us, in the end it saves us money," says Lowery.

By re-examining existing IT resources, Lowery also found a simpler way to build Ebara's supplier portal.

His original plan was to buy new development tools and build a portal from scratch. But his department realized that it could use Oracle Corp.'s Application Express, which was bundled with its Oracle database. That reduced licensing costs and also saved time: It took less than three months to build the supplier portal, rather than the six months the team had originally allotted.

DON'T JUST REDUCE WHEN YOU CAN RE-ENGINEER

For Mark Settle, CIO at BMC Software Inc., the downturn meant cutting more than 5% of the company's IT staff. Yet BMC has managed not to cut any of its IT projects. It finished deploying a major rollout of Oracle's HR and Finance software in October, and in April it started using Salesforce.com for sales activities like contact and lead management.

BMC kept projects going in part by taking a hard look at employees' responsibilities. Settle realized that cost-cutting over the years had led his senior developers and architects to gradually take on operations and service tasks. Automating those tasks has freed his senior-level staffers to do more senior-level work.

For example, about half of BMC's IT employees are developers, who need new runtime environments for their code. These usually are built to custom specifications and take up to six weeks to create. Because they're specialized, they often create glitches that crash BMC's server clusters, forcing reboots. One of BMC's automation engineers determined that it cost the company $5,000 every time a server needed rebooting. He then figured out how to create a catalog of standard environments that could be made available to developers within two hours.

"We'll still do custom work, but you'd be amazed how those [requests] melt away when they can get something in two hours," says Settle. The server crashes diminished as well.

CONSIDER – OR RECONSIDER – OUTSOURCING

With revenues crushed at many companies, even IT managers who avoided outsourcing in the past are being forced to consider it anew.

Applied Materials Inc., a nanomanufacturing technology company in Santa Clara, Calif., has used outsourcing to help it deal with the down cycles that hit the semiconductor industry about once every seven years. It has developed flexible service-level agreements that allow it to add or subtract employees quickly.

That doesn't mean it avoids internal layoffs, "but they're in the hundreds rather than the thousands," says CIO Ron Kifer. And as soon as business shows signs of turning around, he can quickly instruct his outsourcers to add personnel for projects that are in the works.

Kifer says IT's success in crafting such flexible outsourcing agreements has led other parts of the company to apply the same managed-services mantra.

For example, Applied Materials found it was employing financial analysts who were spending most of their time developing reports and aggregating data — tasks that could be done outside the firm, reducing costs by a third through lower head count. The remaining financial analysts were then able to focus on more valuable work.

Even so, firms should be careful not to do blanket outsourcing, says Jim Milde, a veteran CIO who is now executive vice president of global services at IT services firm Keane Inc. "You never outsource your core, customer-facing IT people who work with your business," he says. Instead, consider outsourcing business analysts, call centers and some business process functions.

TIMING IS EVERYTHING

Once the business demand for IT services starts growing in an economic recovery, it's far too late for the in-house IT department to ramp up to meet that demand. The time to prepare for a recovery is just before the recession starts to bottom out, according to a recent report by Gartner Inc. analysts Ken McGee and Mark Raskino.

You can't just wait until the recession is declared over. In the past, the National Bureau of Economic Research hasn't made the official declaration until eight to 21 months after the recession actually ended.

Assuming there will be some modest economic uptick in 2010, the Gartner analysts say the ideal time for recovery planning is during the August-December period, when the 2010 budget is being planned and new IT projects could be incorporated into it.

The report says CIOs should work with business leaders to determine how any existing, stalled or new IT projects "will be prioritized, sequenced, funded and staffed when business growth returns."

According to Gartner, CIOs should have a "return-to-business-growth plan" that is ready to be implemented quickly, when the time is right. "Having a completed plan will enable the near-immediate allocation of funding and staffing for IT projects, thus avoiding the need to take weeks to devise a plan after senior executives mandate the need to support business growth initiatives," the report says.

– MITCH BETTS

GLIMMERS OF OPTIMISM

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SOURCE: CDW CORP. IT MONITOR: A SURVEY OF 1,042 IT DECISION-MAKERS, JUNE 2009

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SPEND STRATEGICALLY, FINANCE CREATIVELY

The University of Northern Florida (UNF) won't know its new IT budget until the state legislature signs off on it for fiscal 2010. But IT has already been taking creative money-saving actions.

Stephen Lyon, assistant director of network engineering at UNF in Jacksonville, says his group surveyed students and found that they were bringing not just computers to campus, but game consoles, various handhelds and netbooks, all of which need their own IP addresses.

Meanwhile, various departments at the university were examining new embedded systems to manage things like sprinkler systems, parking permit dispensers, lights and elevators. All of these help the university save money, but they too need bandwidth.

The school needed a communications infrastructure upgrade. Lyon saw that multiple groups in the university had problems that could be solved with a 10 Gigabit Ethernet backbone and Gigabit Ethernet to the desktop.

Typically, the university coughs up cash in one fiscal year for a big project. But with the downturn obviously coming, Lyon in late 2008 proposed a four-year capital-expense payment plan. His argument: It would prevent the university from having to take a big one-time hit, and it would not affect the yearly operating budget. The result is that the university, which approved the project, created wiggle room in its operating budget and its network.

For its part, Applied Materials actually increased spending on communications technology. In fact, it accelerated an ongoing videoconferencing project after the downturn struck, aiming to reduce travel costs without losing face-to-face contact with customers and suppliers.

Kifer says the technology is so good, the videoconferences are comparable to in-person meetings; that has created a new model for doing business, even in an upturn. "We can reduce the travel budget without losing continuity and closeness with customers," he says.

BMC also boosted spending on communications technology, upgrading its video gear and increasing bandwidth to make it easier to use video in instant messaging. "We're investing in how to use these tools, because even if quality of the video is low, it somehow makes a conversation more meaningful," says Settle.

HIRE A FEW GOOD PEOPLE

Good people are being let go by firms that either aren't thinking clearly or have no choice but to cut muscle, says John Ciacchella, a principal in Deloitte Consulting's San Jose office.

That means there are talented people available who can work with both IT and business units. Companies need to go after such talent, even if they're reducing other staff, Ciacchella says. It may mean an extra cut or two in some areas, he acknowledges, but hiring key people now will automatically put a company in a better position when the upturn comes.

Businesses that are hiring are enjoying the bonanza of top-quality applicants. RightNow Technologies Inc., a midsize Web applications vendor in Bozeman, Mont., has 30 open IT positions. It has invested in a recruiting management tool from Taleo Corp. to help it sift through hundreds of résumés. RightNow CIO Laef Olson says he and his top managers meet for an hour a week to evaluate candidates for senior-level networking jobs.

"Instead of looking for a guy with 'Cisco training,' I'm getting someone experienced with MPLS, voice over IP and quality-of-service in a single candidate. We're raising the bar on talent," Olson says.

INNOVATE TO INVIGORATE THE BOTTOM LINE

As is the case at so many other companies, the downturn has caused sharp declines in growth, and then a cutback in expenses, at Ebags Inc., an online retailer of luggage and bags.

The company had built a staff based on 30% estimated growth rates, so anticipated flat sales meant big staff cuts — 17 out of 40 employees, including 35% of its IT staff, says Peter Cobb, senior vice president and co-founder of the Greenwood Village, Colo., firm.

Those who remain are focusing on adding features that directly help customers find goods to purchase. So Ebags is doing things like enabling customers to search by color and adding new tags to the site, like "laptop bag," for easier searching. It also used site analysis tools from Gomez Inc. to figure out how to get page loads down from 1.5 seconds to 0.7.

Cobb says these priority shifts should put the company in good stead when consumers begin buying again.

In the end, IT managers say their priority is to not just endure the downturn, but to be prepared for the recovery when it finally arrives. As UMass Boston's Agee says, "We're lining up our strategic priorities for the university, and targeting our cuts as far away from them as possible." ■

Fitzgerald *is a freelance writer based outside of Boston.*

POSITION FOR GROWTH

Shvetank Shah, executive director of the IT practice at The Corporate Executive Board in Arlington, Va., offers three practical steps for CIOs trying to survive the recession and prepare for better days:

- **Preserve cash. IT projects have to be low on capital expenses, or what he describes as "capex-lite."**
- **Protect the infrastructure. Keep the lights on and the e-mail flowing.**
- **Position for growth when the economy recovers.**

Regarding No. 3, Shah suggests keeping a small amount of "hard resources" devoted to innovation: a lab, a garage, two people – whatever you can afford. And keep the pipeline of good ideas flowing, even if that just means a spreadsheet or list of ideas to pursue when the time is right. Then, when certain business conditions are met, you can have a conversation with business execs about getting funding for those ideas.

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BMC also boosted spending on communications technology, upgrading its video gear and increasing bandwidth to make it easier to use video in instant messaging. "We're investing in how to use these tools, because even if quality of the video is low, it somehow makes a conversation more meaningful," says Settle.

HIRE A FEW GOOD PEOPLE

Good people are being let go by firms that either aren't thinking clearly or have no choice but to cut muscle, says John Ciacchella, a principal in Deloitte Consulting's San Jose office.

That means there are talented people available who can work with both IT and business units. Companies need to go after such talent, even if they're reducing other staff, Ciacchella says. It may mean an extra cut or two in some areas, he acknowledges, but hiring key people now will automatically put a company in a better position when the upturn comes.

Businesses that are hiring are enjoying the bonanza of top-quality applicants. RightNow Technologies Inc., a midsize Web applications vendor in Bozeman, Mont., has 30 open IT positions. It has invested in a recruiting management tool from Taleo Corp. to help it sift through hundreds of résumés. RightNow CIO Laef Olson says he and his top managers meet for an hour a week to evaluate candidates for senior-level networking jobs.

"Instead of looking for a guy with 'Cisco training,' I'm getting someone experienced with MPLS, voice over IP and quality-of-service in a single candidate. We're raising the bar on talent," Olson says.

INNOVATE TO INVIGORATE THE BOTTOM LINE

As is the case at so many other companies, the downturn has caused sharp declines in growth, and then a cutback in expenses, at Ebags Inc., an online retailer of luggage and bags.

The company had built a staff based on 30% estimated growth rates, so anticipated flat sales meant big staff cuts — 17 out of 40 employees, including 35% of its IT staff, says Peter Cobb, senior vice president and co-founder of the Greenwood Village, Colo., firm.

Those who remain are focusing on adding features that directly help customers find goods to purchase. So Ebags is doing things like enabling customers to search by color and adding new tags to the site, like "laptop bag," for easier searching. It also used site analysis tools from Gomez Inc. to figure out how to get page loads down from 1.5 seconds to 0.7.

Cobb says these priority shifts should put the company in good stead when consumers begin buying again.

In the end, IT managers say their priority is to not just endure the downturn, but to be prepared for the recovery when it finally arrives. As UMass Boston's Agee says, "We're lining up our strategic priorities for the university, and targeting our cuts as far away from them as possible." ■

Fitzgerald *is a freelance writer based outside of Boston.*

POSITION FOR GROWTH

Shvetank Shah, executive director of the IT practice at The Corporate Executive Board in Arlington, Va., offers three practical steps for CIOs trying to survive the recession and prepare for better days:

- **Preserve cash.** IT projects have to be low on capital expenses, or what he describes as "capex-lite."
- **Protect the infrastructure.** Keep the lights on and the e-mail flowing.
- **Position for growth when the economy recovers.**

Regarding No. 3, Shah suggests keeping a small amount of "hard resources" devoted to innovation: a lab, a garage, two people – whatever you can afford. And keep the pipeline of good ideas flowing, even if that just means a spreadsheet or list of ideas to pursue when the time is right. Then, when certain business conditions are met, you can have a conversation with business execs about getting funding for those ideas.

– MITCH BETTS

6 (Cheap) Ways to Train Your Staff

Even in a down economy, smart IT execs find ways to invest in their people.

By Mary K. Pratt

CHRISTINA HANGER is chief operating officer at Worksoft Inc., a small, entrepreneurial software company in Addison, Texas. She has never had a big training budget, yet she acknowledges that a highly skilled technical staff is the lifeblood of Worksoft.

"We have to keep programmers and developers on the cutting edge," she says. "There's no way around that."

Hanger says ongoing education is important because it helps keep technical workers interested, innovative and motivated. But training programs and educational conferences can be pricey. And given the state of many corporate budgets today, CIOs report that such offerings are simply out of their financial reach.

"It's unfortunate that training is always the first thing to fall under the budget ax, because if you're not investing in your people, you fall behind. And your workers remember that. So when the good times are back, they'll be gone," says Robert Rosen, CIO at the National Institute of Arthritis and Musculoskeletal and Skin Diseases in Bethesda, Md., and a past president of Share, an IBM user group.

So, what's a CIO to do? Follow the lead of these executives who have found ways to stretch their training dollars through efficient, yet effective, arrangements.

1 ROTATE EMPLOYEES

Cross-training has long been an important way to help people learn new skills, but Hanger's company has taken it a step further. At Worksoft, IT employees rotate through assignments involving different technologies and projects.

"We don't want people to feel like they're only working on maintenance. So

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everyone works on new products, which keeps them moving into new technologies," Hanger says. "This way, people don't get stale. They don't stagnate."

Alan Stevenson Jr., senior staffing consultant at TreeTop Technologies Inc., an IT staffing and consulting firm in Newton, Mass., says he has seen rotations work equally well within IT departments. His firm worked with a life-sciences company where IT was divided into groups, with each group managing a specific business application. With the training budget squeezed, the manager encouraged employees to collaborate with people in other groups.

"It allows people to diversify their skill sets," Stevenson says, noting that such training can actually be more effective than a typical class. "You get to partner with someone who is hands-on with the application, so you can see what they do every day."

2 SET UP FORUMS

Two or three times a month, employees at Cubist Pharmaceuticals Inc. in Lexington, Mass., can spend their lunch breaks hearing from colleagues who have developed expertise in particular areas.

CIO Tony Murabito started the program several years ago, at first mandating participation to build interest in it. Now the program is popular enough that participation is voluntary. Today, about half the sessions focus on tech topics, with IT workers presenting; the other half delve into issues affecting other departments, with employees from those areas leading the discussions.

"This gives us more information, not just on technology, but also better insight into the business side," Murabito explains. He says a typical session will draw 25 to 30 people but costs only about $100 or so for pizza or sandwiches.

3 BORROW FROM YOUR BUSINESS FOLKS

Murabito isn't the only one who's drawing on the business side for training in tough economic times. Catherine Rodewald, a Dallas-based managing director at Prudential Mortgage Capital Co., says she's focused on giving her company's IT staff industry-specific education.

"We sit them in training that we use with all of our business folks. That training is much less expensive than IT training," Rodewald says. In her company's IT shop, as in many others, the technologists are expected to understand what the business units do and to learn business analyst skills.

For example, if the company's law firm comes in to talk to the accounting department about commercial real estate bankruptcies, the IT workers are encouraged to attend. Rodewald says she'll also tap executives on the business side to give presentations tailored to IT employees.

Karyl K. Innis, chairman and CEO of The Innis Co., a Dallas consulting firm, recommends thinking broadly when it comes to the topics for such sessions. If someone in marketing runs the best meetings, tap that person to teach IT how to replicate the success. The technologists can observe the marketing person in action and then have a follow-up session for questions.

4 PAIR UP WORKERS

Rodewald also encourages IT workers to teach one another through "buddy learning."

"I can take an RPG coder who really wants to learn .Net, or a SQL coder who wants to be better at Cognos, and partner them so they learn from each other," she says, noting that these programs work within IT and across different departments.

Of course, employees could tap colleagues for one-on-one training on their own, but Rodewald says they often get tied up in their daily duties and let the opportunities slip away. That's why company support and an established structure are critical for the program to succeed, she says.

At Prudential, an IT worker can ask a colleague to spend two or three lunches sharing his expertise, and vice versa. Each side must develop a curriculum — "so they're not just sitting and visiting," Rodewald says. She provides lunch for those sessions.

"We have to keep programmers and developers on the cutting edge. There's no way around that."

CHRISTINA HANGER, CHIEF OPERATING OFFICER, WORKSOFT INC.

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The group, dubbed the IT Strategy Forum, expanded that model of collaboration and sharing to their staffs, sending workers to one another's companies for brief stints to learn from what's happening there.

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Murabito says the forum works because the companies don't compete directly, plus they have legal agreements that govern how they exchange information and prevent members from hiring one another's employees.

6 FORMALIZE MENTORING OPPORTUNITIES

Mentoring is another staple of career development that executive coaches often recommend yet many working professionals find hard to implement. Meanwhile, formal programs using outside consultants can cost companies $5,000 to $10,000 per person annually, Rodewald says.

But she notes that executives can start in-house versions for virtually no cost.

Rodewald recently did that in her organization. She picked 10 of the company's best leaders from among a group who had volunteered to be mentors. Then she asked employees to sign up if they were interested in being mentored, selecting 10 who showed potential and could be well matched with a mentor.

To ensure that both sides commit adequate time, Rodewald set up a framework. Both parties must make a nine-month commitment. The pairs must meet off-site at least once a month for about two hours. (That discourages meeting in ineffective 15-minute chunks, she explains.) Those being mentored are responsible for establishing their own goals and objectives.

The pairings are diverse, she says, including some IT people matched with business leaders. ■

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3 (Free) Ways to Learn More on Your Own

Workers can't expect their companies to provide all their training, says Karyl K. Innis, chairman and CEO of The Innis Co. They must take some responsibility for it themselves. But individuals, just like their employers, are cutting back, so the discretionary dollars that went toward a college class or certification course a few years ago aren't there today.

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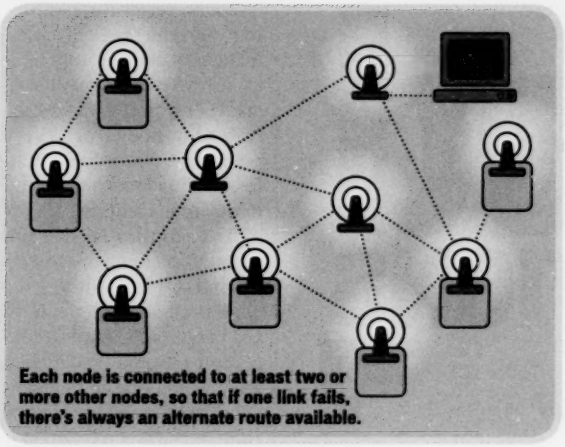

Each node is connected to at least two or more other nodes, so that if one link fails, there's always an alternate route available.

Mesh Networks

These self-healing nets are fast and reliable. By Russell Kay

IN MOST modern networks, links and nodes are interconnected (both logically and physically) in either a star arrangement (with each node connected directly to a central switch, hub or server) or a bus configuration (with each node attached to a central line that is connected to a central switching component). Both of these configurations are well understood, inexpensive and generally reliable, but one broken link in either setup can isolate a node, cutting it off from the network.

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A newer arrangement, mesh networking, connects each node to at least two other nodes (and potentially to each and every other network node, an arrangement referred to as "fully connected"). This involves more cabling (or more wireless devices) and greater overhead, but it allows the network to heal itself automatically when a break occurs, so there's no interruption of service to any node.

The lack of a hub-and-spoke structure is what distinguishes a mesh network. Also, meshes don't need designated routers; instead, nodes serve as routers for one another. Thus, data is passed from node to node in a process called hopping.

The first and best example of a mesh network is the Internet itself. Information travels across the Net by being forwarded automatically from one router to the next until it reaches its destination. The Internet is often depicted as a "cloud," because there are billions of potential paths a signal can take, and it's impossible to predict in advance what that route will be.

Wireless networking is an ideal vehicle for setting up a mesh network, because it can be done quickly and on an ad hoc basis. Wireless mesh nodes are small radio transmitters that function much like wireless routers, using existing Wi-Fi standards (802.11a, b and g) for communications.

Even in a wireless mesh network, you need a wired access point to reach the Internet. Getting that information back to the access point is called backhaul. Small wireless mesh networks handle backhaul without any special configuration. For larger mesh networks, however, such as those designed for cities or large enterprises, certain nodes must be dedicated as backhaul nodes. The other nodes send all outgoing information to a backhaul node, which sends it to the wired access point without extra hops.

MESH IN ACTION

In 2007, preparing for the annual Muslim pilgrimage to Mecca, Saudi Arabia's Communications and Information Technology Commission asked Internet service provider Bayanat Al-Oula to create a temporary wireless network and provide the 2 million pilgrims with free Internet connectivity. They chose a network of about 70 meshed routers and rolled it out in less than 60 days. ■

Kay *is a* Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

Definition

A mesh network is a LAN (usually wireless) where each node is connected to many others, configured to allow connections to be rerouted around broken or blocked paths, with the signal hopping from node to node until it reaches its destination. Mesh networks are self-healing and very reliable.

Mesh Network Pros and Cons

PROS

- **They're self-healing:** If any node fails, another will take its place.
- **The network gets bigger and faster** as more nodes are added.
- **They're convenient in locations that don't have Ethernet connections,** such as outdoor concert venues, warehouses and transportation settings.
- **They're useful where line-of-sight wireless signals are intermittently blocked.**
- **LANs can run faster** than other networks because local packets don't need to run back to a central server.

- **They're still in development.**
- **New standards have not yet been adopted.**
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SOURCES: HOWSTUFFWORKS.COM AND TECHNOLOGYREVIEW.COM

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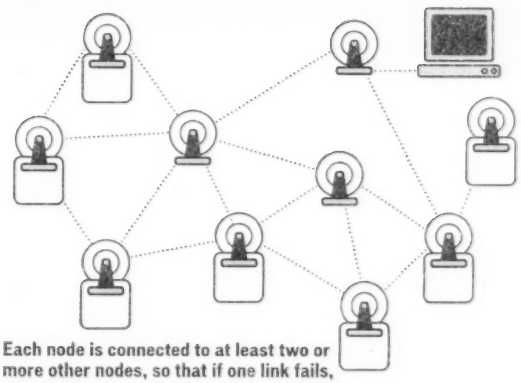

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SOURCES: HOWSTUFFWORKS.COM AND TECHNOLOGYREVIEW.COM

Unified COMMUNICATIONS

It's easy to make mistakes deploying unified communications systems. Here are the lessons learned by four IT managers. BY JOHN EDWARDS

Cisco says its unified communications system lets employees check on co-workers' availability, view voice mails and initiate conference calls.

IT SOUNDS SO EASY: Just give employees the ability to easily move among desktop and mobile voice calls, instant messaging and videoconferencing technologies — and productivity and efficiency improvements will naturally follow.

But IT managers such as Sonny Reid have learned that deploying unified communications (UC) systems isn't that simple. "We clearly had challenges with bringing everybody onto the same platform," says Reid, global network director at Legrand North America, a building automation firm in West Hartford, Conn.

A UC system integrates multiple technologies so that workers can, for example, reply to e-mail with a voice message, read voicemail messages as e-mail, turn instant messages into telephone calls and answer their desk phones from the airport. The challenge is deploying a UC system without causing chaos as the organization adopts unfamiliar technologies.

Elizabeth Herrell, an analyst at Forrester Research Inc., says the problem areas include system interoperability, infrastructure readiness and user training. Failing to fully address each of these points, she notes, could lead to crippling enterprise communications failures.

"UC adoption is not a single solution but a process," Herrell warns. "Without a clear understanding of how UC benefits the entire user community, many of its benefits may not be achieved."

Jayanth Angl, an analyst at Info-Tech Research Group in London, Ontario, says there are several infrastructure issues that could derail a UC deployment, such as implementing it over a network that's incapable of supporting the new traffic. That's why UC projects require a lot of careful planning and testing.

Reid says he was able to achieve a successful UC deployment — with only a few hiccups — mostly because of attention to details, such as helping end users learn how to access and use the system's various communication modes. "There were no showstoppers, which was basically due to the significant planning

If I had a do-over . . . I really would start from the beginning with extensive user training.

SONNY REID,
GLOBAL NETWORK DIRECTOR, LEGRAND NORTH AMERICA

"There's not much value or impact if users don't adopt these new [UC] features.

JAYANTH ANGL, ANALYST, INFO-TECH RESEARCH GROUP

we did upfront," he says.

A phased deployment, rolling out a UC system in several limited stages, also helped Reid avoid any major surprises. He decided early on that Legrand would deploy its Cisco Systems Inc. UC technology on a site-by-site basis at its office locations worldwide. The lessons learned along the way in terms of system performance and user training are continuing to pay dividends as additional locations are given UC capabilities. "We've basically taken advantage of our learning and developed a best-practices cheat sheet," Reid says.

Joseph T. Massey Jr., technical adviser to the deputy CIO at Atlanta's Emory University, says that when it comes to a successful rollout, there's no substitute for knowledge — both of system operations and end-user needs. Emory's UC deployment, based on Avaya Inc. technology, includes a complex mix of fixed and mobile VoIP, unified messaging, conferencing and other communications technologies.

"The hardest part about planning [a deployment] is learning how the system works," Massey says. A staff that fully understands a UC system's structure and its user requirements is prepared to identify and remedy just about any rollout problem that may arise.

But acquiring the necessary knowledge takes time, Massey adds. "There's a discovery process that I would say takes several weeks," he says. Yet Massey feels that such an extended effort is necessary if an enterprise is absolutely serious about avoiding a UC breakdown. "Perfection doesn't just happen," he notes.

IN WITH THE OLD

Jim O'Brien, director of technical services at St. Louis-based ReHabCare Group Inc., a physical rehabilitation services provider, says he was able to prevent start-up glitches, reduce end-user confusion and cut costs by bringing some of his enterprise's existing technologies — such as its PBX system and phones — into the new ShoreTel Inc. UC system.

"PBX phone systems come with line cards . . . so we were able to take the old phone system and then integrate it with the new [one] so they could talk to one another," O'Brien says. "It allowed us to do a much more graceful transition, rather than trying to come in and replace 450 phones in one weekend."

Bob Haldane, operations analyst at Payworks Inc., a payroll services firm in Winnipeg, Manitoba, says he avoided deployment problems by going with a UC system that was easy to design and manage. For Haldane, this meant steering clear of Linux-based offerings. "We don't really employ very many Linux experts here," he says. After considering various options, Haldane ultimately settled on Windows-based UC technology from Objectworld Communications Corp. "It's allowed us to feel comfortable by not sending us into a situation where we would be in over our heads," he says.

Haldane also felt it was important to find a vendor that would commit to fast and reliable support. "If something does go wrong, you want to make sure you've got a lifeline you can call," he says. "You want them to get you back up and running if it's something that you can't figure out in-house."

Info-Tech's Angl notes that poor training often sends new UC deployments into chaos as confused end users flail away in an environment they don't fully understand. "When you're implementing this end-user-facing technology, certainly having a help desk and support processes in place — ensuring that end users have access to training as part of the deployment — is critical," he says. "There's not much value or impact if users don't adopt these new [UC] features."

Reid says the only significant glitches he experienced were the result of poor training. "We absolutely learned the lesson the hard way, and if I had a do-over, that would be the one I'd want," he says. "I really would start from the beginning with extensive user training." ■

Edwards *is a freelance writer in Gilbert, Ariz. Contact him at jedwards@gojohnedwards.com.*

SIX STEPS TO UC Success

1. Create a project strategy. Any organization adopting unified communications without a detailed deployment plan is just begging for a communications fiasco.

2. Check for interoperability and infrastructure readiness. Make certain that the existing enterprise network, including servers, routers and other infrastructure elements, are ready to handle the additional load UC technology will create. In a mixed environment, work with all vendors to ensure that the UC system's components mesh seamlessly. Test the system thoroughly at each deployment stage.

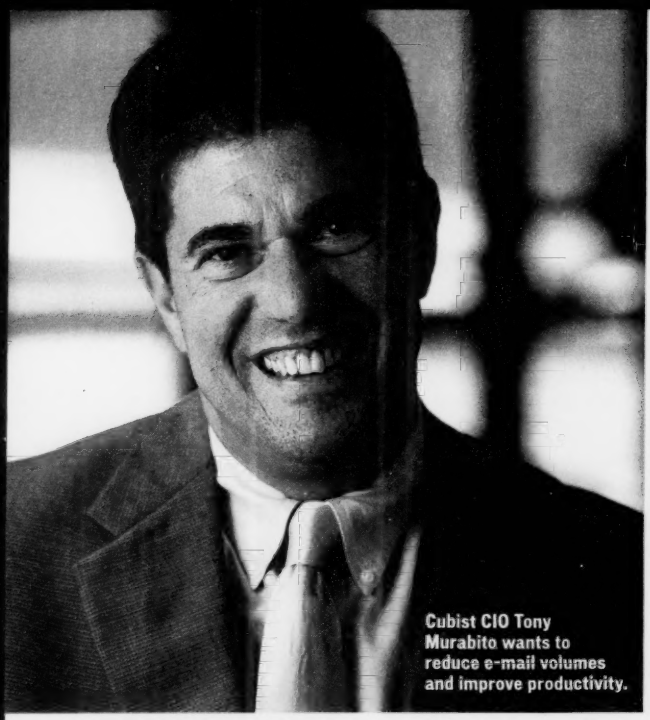
3. Provide user training and support. Many end users find UC technology confusing and intimidating. Provide initial training and ongoing support to help employees learn how to use UC and exploit its full potential.

4. Use existing communications resources. Whenever possible, bring existing technologies – such as PBXs and phones – under the UC umbrella. This approach will minimize deployment disruptions, since some of the system will already be in place, and will lessen the likelihood of unexpected failures. It will also speed employee training and save money.

5. Stay within your comfort zone. If a particular UC system is based on underlying software that your staff isn't familiar with, you may want to look for another product.

6. Stage a phased deployment. A gradual rollout, such as by department or floor, will limit any start-up glitches to just a handful of employees rather than the entire enterprise.

– JOHN EDWARDS



Cubist CIO Tony Murabito wants to reduce e-mail volumes and improve productivity.

■ MANAGEMENT

Going on an E-mail Diet

A CIO is waging a campaign to cut office e-mail traffic by 25%. By Mary K. Pratt

CIO TONY MURABITO surveys workers at his company every year, asking them about their experiences and expectations regarding the IT systems they use. The responses usually focus on technical issues, which is why last year's comments about e-mail shocked him.

"Let's blow up the Reply-to-All key!"

*"Why can't people get to the *&!% point!"*

"I am in the field all day selling and come home to 60 to 80 e-mails."

"There was just an overwhelming sense that there were no controls [on e-mail] in place," Murabito says.

CIOs are in the business of delivering technology, not curtailing its use. But after seeing those comments, Murabito decided to do just that. His goal for his company, Cubist Pharmaceuticals Inc. in Lexington, Mass., is to cut the number of e-mails by 25% by training employees how to better use one of the basic tools of the modern office.

This e-mail problem isn't unique to Cubist, says Dianna Booher, CEO of Booher Consultants Inc. in Grapevine, Texas, and author of *E-Writing: 21st Century Tools for Effective Communication*. "I hear a lot of complaining, and there's not a lot of people doing something about it," she says. "But I think people will have to do something, because it's blocking productivity."

Booher's surveys of clients have shown that 58% of workers spend up to three hours a day on e-mail. Though some of that e-mail time is undoubtedly related to getting their jobs done, she says, much of it is a waste because messages are either poorly written or have little or nothing to do with business.

To be clear, this isn't a spam problem. Workers at Cubist are complaining about the excessive amount of business-generated e-mails, Murabito says. They say they trudge through confusing and pointless messages because senders mindlessly hit "Reply to All" just to say something like "Thanks."

"It's a kind of internal spam. It's low-value, low-priority communication that clogs up in-boxes and creates a nonstop stream of interruptions," says Mike Song, lead author of *Hamster Revolution: How to Manage Your Email Before It Manages You*, and CEO of Cohesive Knowledge Solutions Inc., an e-mail and meeting training company in Guilford, Conn.

Song says he's not surprised by the situation, because most employees don't receive any training on how to effectively use e-mail.

BIG ROI

Murabito says his research showed that cutting e-mail communications could help each Cubist worker recover an estimated 15 to 20 days of lost productivity annually — or 7,000 to 9,000 days every year for the whole organization.

E-mail Regimen

Hoping to cut both the volume of e-mail and the amount of time workers spend on it, Cubist Pharmaceuticals is doing the following:

- Asking employees to put non-business-related messages, such as appeals to buy Girl Scout cookies, on the corporate intranet.
- Limiting the ability to send messages to all employees to only those people who have a business need to do so.
- Training workers to use the subject line to provide more detail and some direction, such as "for your action" or "for your information."
- Reminding employees that they don't need to acknowledge every e-mail that they were cc'd on.
- Encouraging people to stop sending e-mails that simply say something like "Thanks!"
- Adopting the ABC format for e-mails: action, background and close.
- Increasing the interval at which the system refreshes in-boxes from every two minutes to every half-hour, so people don't feel the need to constantly break away from their work to check their mail.
- Routing certain e-mails, such as Google news alerts, to folders other than the in-box, so workers can check them when they have time rather than every time they appear.

– MARY K. PRATT

"I never had a project before that could have that kind of ROI," he says, noting that his investment was mostly internal staff time and about $50,000 in training costs.

Murabito says tackling the problem is yielding important benefits for the IT organization, too.

For example, the volume of e-mail was bogging down the company's systems. Regular maintenance is scheduled to run from Saturday mornings to Sunday evenings. That was once enough time to run a typical integrity check, but as the amount of e-mail grew, two days was no longer enough to run through and clean up corrupted objects in every mailbox.

Murabito determined that if he could cut back on the volume of e-mails sent and stored, he could once again work within that time frame.

He approached this problem as he does any IT project: He developed a business case to convince other executives that it was worth tackling. Response from the start was very positive.

"I had done numerous presentations to senior management, and I have never had one go quicker and smoother," Murabito says.

He laid out his goals, outlining a plan that called for providing tools and tips to help employees be more productive in managing their e-mail, and training them on communication guidelines and best practices with the help of the company's contracted trainer. He also pulled together a team of employees from various departments who established ground rules.

> **"I never had a project before that could have that kind of ROI.**
>
> **TONY MURABITO,** CIO, CUBIST PHARMACEUTICALS INC.

Not surprisingly, Murabito encountered some resistance. He set up a program that would clean out everyone's deleted-mail folders every night and delete all sent e-mails that were over six months old, but some workers resisted, saying they needed those messages.

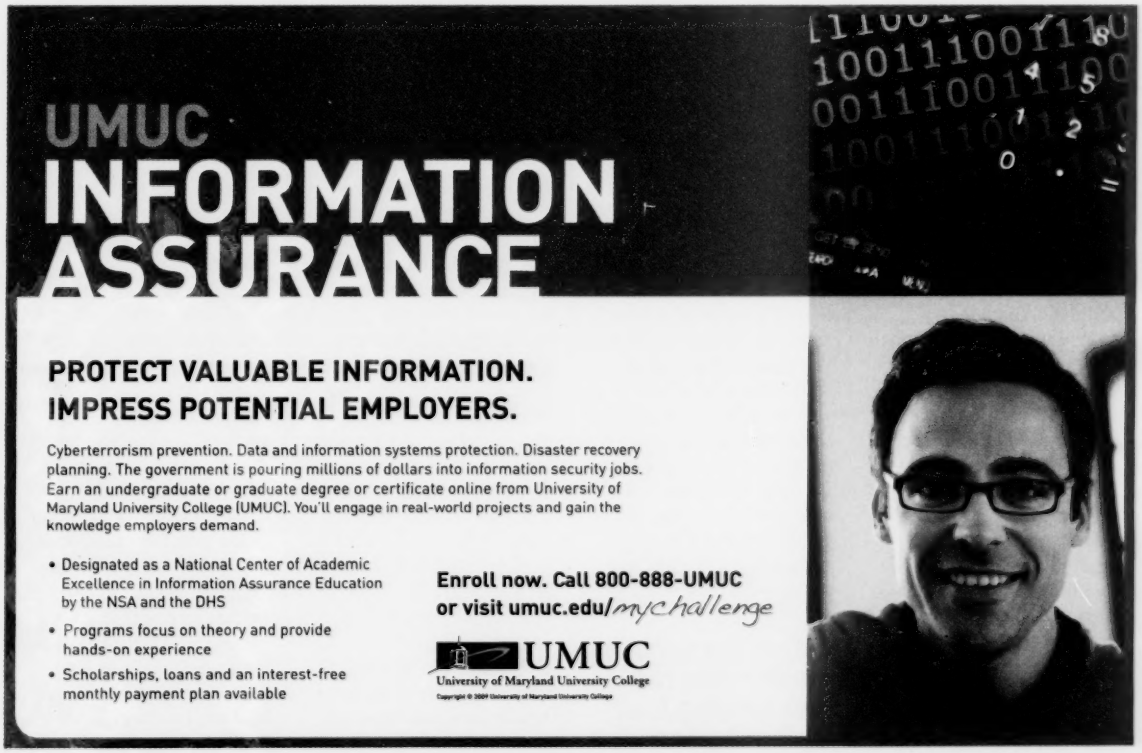
That was an eye-opener.

"It showed they were using e-mails for more than point-to-point communication. Some were using it for document management," Murabito says. This revealed that workers, such as those in the clinical and regulatory areas, need better document management tools (which he's delivering).

Cubist's "Project E-mail Etiquette" is still under way, but Murabito says he's confident that he can reach the goal of cutting e-mail by 25% once everyone is trained later this year. He's already hearing reports of success. Consider the subject line of one e-mail Murabito received: "Just reduced my inbox from over 14k emails to 1460 {eom}."

Given his success so far, Cubist executives have enlisted Murabito to tackle that other big productivity drain: meetings. ■

Pratt *is a Computerworld contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*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The Case of the Impossible Address

An IP address of 0.0.0.0 **just doesn't make sense.** So how did traffic for that destination get delivered **to the network?**

Trouble Ticket

AT ISSUE: A routine review of logs turns up something intriguing.

ACTION PLAN: Put on your detective hat, recruit a sidekick, and get to work on solving this mystery.

THIS MONTH, I found myself chasing a mystery on my company's network.

When I get free time (which isn't often), I try to review the logs of our various security devices. We have other people who can dig through this sort of thing, but I think it's important to be connected to what's going on in our network. Maybe my eyes will see something that the software tools are missing or that other people have overlooked. In this case, I validated that idea.

As I was reading through our firewall's logs, which is usually a tedious and unexciting (though necessary) activity, I found something strange. Our firewall was seeing a lot of traffic coming in from the Internet with the destination IP address of 0.0.0.0 — an impossible address. I long ago set up a rule on our firewall to block traffic either coming from or going to that and other clearly bogus numbers. Our firewall was dutifully blocking this bad traffic and noting that in its logs. But when I saw the log entries, I was intrigued — my boring duty had suddenly become interesting. What could be trying to send traffic into my network with that crazy, nonexistent address, and how could it possibly have been delivered to us? That's like finding a letter in your mailbox with no address on it.

I put on my detective hat. There weren't too many possibilities within the realm of credibility. If somebody was sending traffic from somewhere on the Internet to a destination address of all zeroes, it would go exactly nowhere. Yet here it was at my network's door. Was there a way the address could have changed somehow once it got into my perimeter?

I didn't think that was very likely but noted it as a possibility. But if it wasn't coming from the Internet, the only other reasonable explanation I could think of was that the traffic was somehow being injected into our network between our firewall and the Internet, which would mean — cue the spooky music — that the call was coming from inside the house!

■ Cue the spooky music – the call was coming from inside the house!

ZERO SENSE

Naturally, it's not easy to track down the source of traffic when the address doesn't make any sense. I enlisted the help of my company's network engineer, a very sharp guy. He was as intrigued as I was, so together we set out to try to figure out what was going on. We took a look at the Internet router, which is the next hop for network traffic outside our firewall. We didn't find anything strange in the router's configuration or traffic logs, but something was definitely fishy. There was no trace of any traffic with that strange, all-zero IP address.

After a closer look, the network engineer discovered a significant clue: The router was out of memory. Apparently, our Internet router had been working hard, and it ended up without enough free memory.

In the end, that memory shortage turned out to be the culprit. This brand of router ends up "dropping" some network information when it doesn't have enough memory, and that explains the zeroes: Without enough memory to put together a valid network packet, the result was a bunch of zeroes, some of which turned out to be in the right place to produce the mysterious empty address.

A reboot of the router seems to have solved the problem. Now our network team is going to keep a closer eye on the resource usage in our routers and network devices.

I'm pleased that IT security tools and personnel were able to identify and help track down a functional problem on our network. Even though the problem wasn't strictly security-related, it was first detected by our equipment, and in this case, security was able to do something that was perceived as helpful instead of being a roadblock. I count that as a win. ■

This week's journal is written by a real security manager, **"J.F. Rice,"** *whose name and employer have been disguised for obvious reasons. Contact him at jf.rice@engineer.com.*

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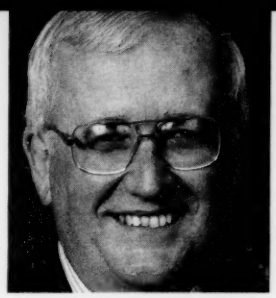
■ OPINION

Paul M. Ingevaldson



Working With Users Benefits All

IN INFORMATION TECHNOLOGY, we want to consistently develop effective systems. We also want to maintain a good reputation within the company. I've noted before how essential users are to both of those goals, and I've argued that it's our responsibility to train them so they know how to help us achieve our goals and realize how doing so is mutually beneficial.

But just what areas are ripe for user training? Let me count the ways.

■ **Project initiation.** For a lot of users, how projects are selected can be a mystery. It can help if your company is enlightened enough to have a steering committee that prioritizes major projects. But some companies still use the "squeaky wheel" or the "all-knowing CIO" approaches. If you help users understand how things work in your company, they might even be able to help improve the system.

■ **Project involvement.** Users, happy to see their projects approved and scheduled, might not realize how important it is for them to be involved at every stage. It is especially crucial that we educate them about how vital their assistance is in the systems analysis and design stages. If they don't devote all the necessary time and resources at those stages, specifications won't be properly transmitted. And at the end of the project, user feedback is the only way to ensure that the system is performing as desired. It can help to impress on the users that the completed project will belong to them, not to IT.

■ **Decisions about development options.** With requirements in hand, IT can investigate the various options that are available to deliver what users are requesting. Each option will have trade-offs that the users are best situated to evaluate, so again the users should be involved in the discussion. For example, IT might note that a packaged application is available that addresses most but not all of the requirements. Would users be willing to give up some features in return for a rapid deployment of existing technology? If not, do they understand the complexity of developing customized modules and the even more severe cost and time ramifications of developing custom solutions? Either way, IT has to make sure they are adequately informed to make a decision they won't regret in a few months.

■ Just what areas are ripe for user training by IT? Let me count the ways.

Other areas that cry out for user involvement are not tied to specific projects.

■ **Business continuity impact analysis.** Sometimes we mislead ourselves into believing that if IT systems are breached or knocked out by a natural disaster, it's purely an IT problem. So we make our business continuity plans in isolation. But leaving users out of the equation is sure to result in plans that fail to properly assess which data is critical and what recovery time frames must be achieved. It's also one sure way to guarantee a poor reputation for IT. So get users involved, not only in developing the plan, but also in testing it on a regular basis.

■ **New technology decisions.** Both IT and users must constantly be on the lookout for new technologies, and they should bring any potential discoveries to each other's attention. Together, they should explore the ways the technology could impact users, the potential for competitive advantage, and compatibility with existing systems.

There are, of course, other areas where users and IT should interact regularly. And sometimes it's the business side that's guilty of leaving IT out of the loop; this often happens during a merger or acquisition.

But if you adhere to this list faithfully, you will find that not only will IT's reputation improve, but user-IT interactions will become a natural thing that everyone on both sides will come to expect as a rule. ■

Paul M. Ingevaldson *retired as CIO of Ace Hardware in 2004 after 40 years in the IT business. Contact him at ingepi@aol.com and visit his Web site,* www.paulingevaldson.com.

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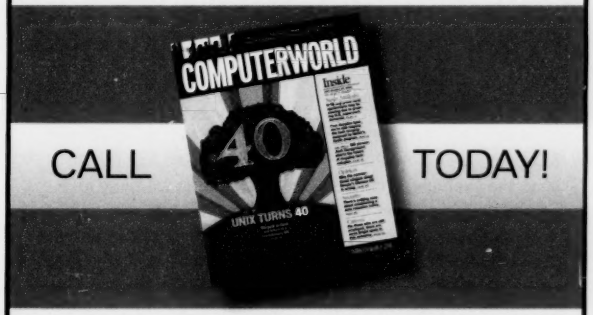

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Career Watch

HEAD FOR THE MIDSECTION

That's where the job growth is going to be – away from the coasts, according to *Forbes* magazine, which published its annual Best Places for Business and Careers report in March. *Forbes* uses several ranking metrics in calculating the overall best places, one of which is projected job growth. Looking at that single category, the 10 top large metro areas are all in the deep South (seven in Texas and two in Alabama) and the Rockies (Boulder, Colo.). Two of those metro areas are on the Gulf Coast, but none are on the Atlantic or Pacific coasts. Texas doesn't dominate the top of the list of small metro areas, but it still accounts for three of them. Again, the others are in the South and the West, but none is as far West as the Pacific Ocean.

BEST LARGE METROPOLITAN AREAS FOR PROJECTED JOB GROWTH	BEST SMALL METROPOLITAN AREAS FOR PROJECTED JOB GROWTH
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Fort Worth-Arlington, Texas	Bend, Ore.
Boulder, Colo.	Florence, Ala.
El Paso, Texas	Tyler, Texas
Houston	Bismarck, N.D.

PAGE COMPILED BY JAMIE ECKLE.

ASK A PREMIER 100 IT LEADER

Norm Fjeldheim

Qualcomm Inc.'s CIO answers questions about preparing for life after the recession and dealing with a dysfunctional IT department.

New projects are hard to come by at my company these days, but I feel that when the economy improves, the dam will burst and we'll be flooded with initiatives. What would a wise integrator do during these relatively quiet times to prepare for the better days ahead? My thoughts would be to work on improving your "tool box" – investing in tools to help your company put together and implement its SOA environment, integrate internal and external clouds, roll out SaaS, deploy virtualized environments, etc. Tools you develop now will enable you to put together stronger proposals in the future, at a lower cost. The same thing holds true for developing your skills in key technologies, again to improve your competitiveness down the road.

QUESTION?
If you have a question for one of our Premier 100 IT Leaders, send it to askpremier@computerworld.com, and watch for this column each month.

One other area to consider: open source. Having strong knowledge of open-source alternatives to purchased products can give you an edge over competitors that are only offering packaged software. Giving your customers options, especially lower-cost options, should help you get work. Open-source solutions are going to be increasingly viable in the future.

I've come to realize that the IT department I joined last fall is the most dysfunctional place I've ever worked. Communication skills are practically nonexistent. I'm an IT director, so I obviously can't do much to heal the organization from my middling position, although I am trying to do my best with my little part of the IT world and be a good example for other leaders in the department. Clearly, I failed in my due diligence before I made this move, but what's my best option now? I used to spend a lot of energy (and a lot of sleepless nights) trying to change things and people that were really outside of my control. Now I focus on trying to improve myself and my team. I've found that over time, if my team and I are functioning well, then it tends to be contagious, and other people and groups start picking up our traits.

Of course, some situations are so bad that no matter what you do, it is just bad news and not healthy. There's no sense in being miserable. If this is one of those situations where there is no real hope, then I would continue to do the best job I could, while actively looking around for something better. It used to be that people who moved around a lot were viewed negatively. Now, in many cases, candidates who have experience in different jobs and companies are looked at favorably, as long as the job hopping is not extreme. I don't think a shift from a bad situation is going to hurt your career.

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TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Drive, Drive Again

New guy on this IT team heads to a site two and a half hours to the south, where he's urgently needed to diagnose a failed server. "Half an hour later, he came back into the office," says a pilot fish at HQ. "His satellite navigation system had failed. We got a road atlas, printed detailed instructions on how to get to the site and sent him on his way again. Turns out he cannot read maps. An hour and a half later, we got a call from him saying the instructions were no good. He was one and a half hours to the north of our office, meaning he was now four hours away from the site he was supposed to be heading toward. We sent him back home. When he arrives back in the office tomorrow, we'll be teaching him how to use the antique skill of reading maps – just in case his satellite navigation system fails again."

Right the First Time

IT pilot fish gets a terse user request to whitelist a law firm's Web site, which the company's newly installed content filter is blocking. Fish tells user that he'll have to investigate further. Minutes later, fish gets an e-mail from his boss – cc'd to his boss's boss – saying that it's *very* important to open access to this site right away. Then fish's boss's boss sends an e-mail asking why a law firm's Web site has been blocked. Finally, a few minutes later, fish gets another e-mail from his boss's boss – cc'd to everyone involved – that begins, "I went to that Web site and I got a virus." Reports fish: "Turns out he was working at another location this week that didn't have content-filtering software. He clicked the link in the original e-mail and it immediately dropped a drive-by Trojan on his machine, which caused such a flurry of network activity that the network admins at that location came running and told him they had to take his PC off the network. His final words were, 'This is a pretty good proof of concept.' "

What Else?

At this government agency, the treasurer's office decides it needs new software to run its cashiers' stations – with a single sign-on and password for all users, says a pilot fish on the scene. IT objects, but that's the way the vendor has built it when it's time to start testing. Treasurer and vendor's rep proudly announce that the cashiers will sign on with the user ID "Cash," and only the cashiers and supervisors will know the password. IT manager listens, then says, "Oh, and what is the password – 'Money'?" And the treasurer's and vendor rep's faces suddenly go ashen. Says fish, "Before testing was finished, the application was changed to allow individual user IDs and passwords."

■ *Feed the Shark! Send me your true tale of IT life at sharky@computerworld.com. You'll get a stylish Shark shirt if I use it.*

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■ OPINION

Paul Glen

Two Cheers for The Passionless

I OFTEN HEAR consultants, writers and managers offering advice about how to elicit passion in the workplace. They talk of strategies to help people find their passion, and they endorse weeding out people without the inner drive that they claim is essential to success.

To be blunt, much of this type of talk seems silly at best, self-aggrandizing and delusional at worst. Usually when I hear a manager talk about the passion of "my people," it seems a transparent and cringe-worthy attempt to prove what a great leader he is.

Few ever seem to take a moment to think carefully about the nature of passion and what role it should play in the workplace. They simply assume that passion is a good thing and that the more of it workers have, the better they will perform. I'm not so sure.

One of my favorite scenes from the movie *Lawrence of Arabia* illustrates my skepticism. Reporter Jackson Bentley is talking to Prince Feisal about the treatment of prisoners of war by the Arab army, which was led, in part, by the British Major T.E. Lawrence:

Feisal: *Our own prisoners are taken care of until the British can relieve us of them, according to the [Geneva] Code. I should like you to notice that.*
Bentley: *Yes, sir. Is that the influence of Major Lawrence?*
Feisal: *Why should you suppose so?*
Bentley: *It's just that I heard in Cairo that Major Lawrence has a horror of bloodshed.*
Feisal: *That is exactly so. With Major Lawrence, mercy is a passion. With me, it is merely good manners. You may judge which motive is the more reliable.*

The scene foreshadows Lawrence's bloodlust for slaughtering the retreating Turkish army. His passion for mercy proves unreliable, eventually giving way to an equally strong passion for just the opposite behavior. In the movie, Feisal's manners are invariably impeccable no matter how dire the circumstances or compelling the temptation.

■ In most situations, I prefer to see not a passionate group, but a professional one.

And so it is in life and work that passion is often an ephemeral and inconstant thing. People in the throes of intense emotions can achieve remarkable things. But their passions can also turn destructive. Most often, this sort of emotional intensity cannot be sustained, and deep commitment is followed by periods of disillusion or disengagement accompanied by low productivity.

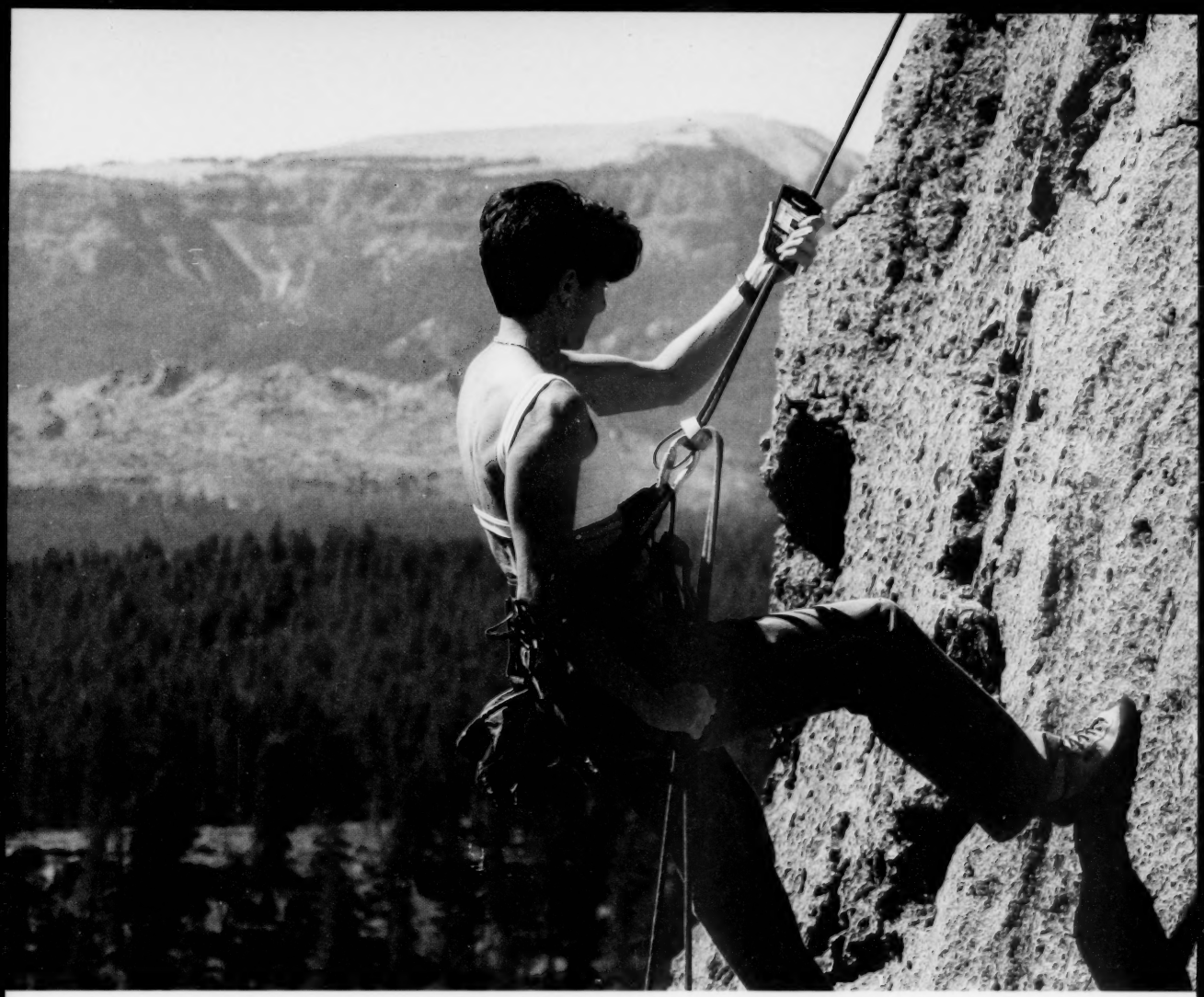
Also, we need to be honest about the nature of our work. Most projects are relatively routine and mundane. They are interesting but not necessarily inspiring, lacking the import or grandeur required for genuine passion. Rolling out new routers does not induce emotional ecstasy. Composing PowerPoint presentations doesn't resemble writing and refining the "I Have a Dream" speech. Re-engineering accounts payable processing doesn't inspire great poetry.

Of course, there are teams that are truly passionate about a project, some technology or the benefits of their work. If you work for UNICEF feeding children, that's something to get passionate about, even if the technology isn't exciting.

And there are moments when passion is appropriate for technical projects. Some parts of projects do require intensity, like finishing a difficult development. And the rare project devoted to creating something genuinely innovative requires a passionate commitment to the object being created or the benefit being sought.

But in most situations, I prefer to see not a passionate group but a professional one. Professionals are always engaged with their projects and enjoy their work and colleagues — or at least tolerate them with equanimity. Professionalism is the work equivalent of impeccable manners. It is reliable and steady, and does not depend on the compelling nature of a project or the charisma of a leader. Professionals always get a job done. The passionate may or may not. ■

Paul Glen *is a consultant who helps technical organizations improve productivity through leadership, and the author of the award-winning book* Leading Geeks *(Jossey-Bass, 2003). You can contact him at info@paulglen.com.*



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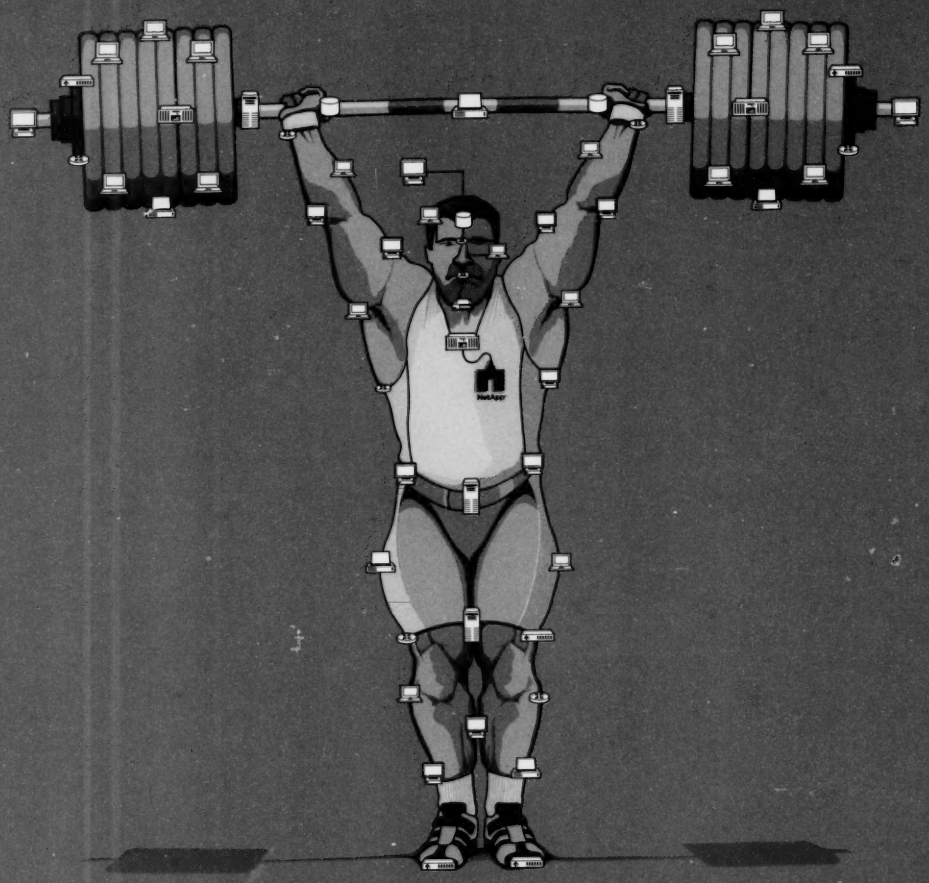

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